THE JUNIOR HIGH SCHOOL

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THE
JUNIOR HIGH SCHOOL

BY

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WITH AN INTRODUCTION BY

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INTRODUCTION

It has been the traditional assumption that public schools are merely educative in function. To be sure this is their originating purpose and will remain their dominant one. But the scientific study of the careers of pupils indicates that the school system inevitably performs certain other functions which have large consequences for the students inasmuch as they retard, close, lengthen or determine the particular quality of the school education received.

One of these additional school functions is the protecting or conserving function which schools are always tending to exercise in special manner and varying degree. There is not much question that the schools of fifty years ago, with their rigid adherence to a narrow course of study and their continued favoring of those gifted in this restricted curriculum, were inclined to encourage the training of the few and to discourage the education of the many. In the present school system a far more democratic impetus is at work. More attention is being given to varied types of mind. Those who suffer physical and mental handicaps are given the merciful attention of medical inspectors, school nurses, school clinics and special classes with a regimen of their own. For the most

part, these modern adjustments are the outcome of an aspiration to equalize educational opportunities. Their result is a longer period of schooling than would have been the privilege of most unfortunate children several decades ago.

There is another school function which is the outcome of a quite different aspiration, namely the desire of the teaching profession to be economical and efficient in the service it renders the individual and society. In the older and more traditional schools it expressed itself in the selection and rejection of students, the standards of such continuous discrimination being on the whole narrow rather than broad. Recent statistical studies of school careers have indicated such an unanticipated rate of retardation and consequent elimination that attention has been focussed critically on the organization and method of the existing school system. In turn thoughtful educationists have proceeded to constructive experiments devised to hold children in school. Individual instruction, multiple courses and elective studies, departmental teaching, promotion by subjects, vocational and prevocational classes, educational and vocational guidance and other modern innovations have been in considerable degree developed out of the attempt to lengthen school careers through better adjustments to individual differences. In so far as this motive has established itself as a working reform in the schools, it has transmuted the older and more or less subconscious function of selec-

tion and rejection of students into the contemporaneous and quite conscious policy of distributing school attendants more effectively within the complex ramifications of the modern school system. Thus whatever ability and interest the child or youth has is given a more congenial activity through which to express himself and the student's career is prolonged. This distributive function of the school operates within the school as educational guidance and across the gap between school and working life as vocational guidance and placement.

The professional recognition of these conserving and distributing functions of the public school system and the perception of their tremendous influence on the quality and quantity of the educational service rendered by the school to youth have been responsible for much of the current educational reconstruction. For this reason, it is well to have in mind the multiple functions of the public school system before beginning the study of a particular group of educational readjustments such as are involved in the Junior High School Movement. They are mentioned here so as to give a background to the specific interpretations of this particular educational reorganization.

It is not at all accidental that the teaching profession should at the present time be deeply engrossed with the Junior High School Problem. There is adequate reason for such interest. Attention usually focuses on the most troublesome group of problems. It is

precisely because the now-obvious maladjustments seem to be more numerous and important in and about the close of the elementary school years and the first years of high school, that the effort at reconstruction has been most pronounced at this point in the school system. In consequence the analysis of the Junior High School Movement offers one of the most significant views of current educational thought and practice.

It is quite important for the profession to know in an accurate way the exact status of this movement. Many claims have been made for the Junior High School. We must know which are justified. Many new devices of administration have been proposed and tried. We must learn which are expedient or successful. The unsolved problems must be indicated that additional experiments may be conducted in an economical way and the whole development of the Junior High School hastened in the direction of sure results.

The author of the volume here presented serves our needs with a treatment which is scientific in spirit and method. He offers us the strict fact of experience. He summarizes the success, failure and uncertainty of our experiments to date. His study is a valuable contribution to the next stage in progress, because its method is not the optimistic expression of doctrine and intent, but the unprejudiced analysis of practice and result.

HENRY SUZZALLO.

SEATTLE, WASH.,
December, 1919

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THE JUNIOR HIGH SCHOOL

I

THE MOVEMENT FOR REORGANIZATION

THE FACTORS OF THE MOVEMENT

MANY forces, not one or a few only, are responsible for the movement for educational reorganization finding expression in the present widespread establishment of "junior high schools" or "intermediate schools." Perhaps first in point of time has been the appreciation on the part of some of our educational leaders that, as compared with certain European school systems, for the children in our schools entrance upon the period of secondary education is too long delayed. We have been told that there is a waste of time in our system. The unfavorable position given American schools in these comparisons has had no little to do with the current dissatisfaction with the conventional relationship between our elementary and secondary schools.

A second factor must be the statistical studies showing the high rate of pupil mortality beginning at about the sixth grade and continuing unabated through the

earlier years of the four-year high school. During a long period we had been taking a smug satisfaction in what we regarded as the equality of educational opportunity afforded by our system. It hurt our pride to learn that the facts did not square with our boasting. Those directing our schools could hardly do otherwise than cast about for the means of achieving the educational democracy we had failed to attain.

Upon the heels of these disconcerting data and doubtless in some part discovered in an effort to learn the causes of elimination, came facts touching the wide variation in capacity, interests and needs of children in and out of school. A consideration of these differences brought a consciousness of the impossibility of adequately recognizing them in the conventional school. As the problem of recognizing these variations grows more acute in the grades commonly associated with the junior high school, it was but natural that efforts at reform should focus upon them.

Another force, perhaps even more influential than any of those already mentioned, may be set down here: the increasing appreciation of the fact that during the later years of the common school most children are undergoing changes in the nature of a rapid approach to adulthood, changes which make unsuited for them many of the features of that school. Among these incompatible features are the complete disciplinary dominance of the one-teacher regimen and the repetition and extension of the materials and methods of

the "common branches" at a time when the child needs to be engaged by new interests.

Besides the forces mentioned and others which will occur to the reader as legitimate, we may point out certain forces which have had much to do with hastening the present status of reorganization and which are actually extraneous to the more strictly educational requirements of the situation. Here may be mentioned the solution of a knotty local building problem which is made possible by instituting the junior high school plan. For instance, the four-year high school building in a system becomes overcrowded. To build new and larger accommodations seems to the administrative authorities impossible. By removing the pupils of the ninth grade from the high school building and housing them with those in the seventh and eighth grades in some older buildings the problem is solved. This easy emancipation from a housing difficulty has sometimes been the primary cause of a superficial reorganization; it has also sometimes been used to effect genuine reorganization where otherwise there might have been too great opposition to a change for which the populace was not yet prepared.

A second factor of the broad sweep of the movement for reorganization extrinsic to educational needs and one which is more influential than that just indicated is the desire of school authorities to be "progressive." This factor is not unlike the force of a fad. It often operates without any clear under-

standing of the purposes of reorganization and it not uncommonly results in change which, rather than being fundamental, restricts itself to such a superficiality as the mere regrouping of grades.

REORGANIZATION FORESHADOWED

The consciousness of a need for reform in the grades now associated with the junior high school is not new. It has been with us for more than quarter of a century. As early as 1893 the widely influential Report of the Committee of Ten on Secondary School Studies made recommendations in considerable part foreshadowing present-day reorganization. The chief emphasis of the report, of course, bore upon readjustment within the conventional four-year high school, but, in the light of his earlier pronouncements, it was scarcely to be expected that a committee working under the leadership of Charles W. Eliot would ignore the problem of the relationship of this organization to the grades below the high school. For some years he had been urging the "shortening and enrichment of school programs." In harmony with this is a statement in the Report of the Committee of Ten where comment is made upon the programs of study proposed:

> "In preparing these programs, the committee were perfectly aware that it is impossible to make a satisfactory secondary-school program, limited to a period of four years, and founded on the present elementary-school subjects and methods. In the opinion of the committee,

several subjects now reserved for high schools—such as algebra, geometry, natural science, and foreign languages—should be begun earlier than now, and therefore within the schools classified as elementary; or, as an alternative, the secondary-school period should be made to begin two years earlier than at present, leaving six years instead of eight for the elementary-school period."

Consonant with this comment are the recommendations of each of the Conferences of specialists whose reports the Committee of Ten had before them when the report from which quotation has just been made was in preparation. The Conference on Latin urged the introduction of that subject into the grades below the ninth, while that on Modern Languages recommended similarly the introduction of elective work in German and French. The Conference on Mathematics asked for the continuation of the usual eight years of arithmetic, but spoke also for a place for concrete geometry and for algebraic expressions and symbols and simple equations. The Conferences in the sciences urged some recognition of their fields in elementary grades. Each of the remaining conferences made recommendations that called for more or less reorganization of elementary-school curricula in the general direction of a more extended recognition of its subject.

If we may judge from those portions of the Report of the Committee on College Entrance Requirements [1]

[1] Appearing in 1899.

touching reorganization, the six years following the appearance of the Report of the Committee of Ten did much to emphasize the demand for reform in the grades immediately below the ninth. In one of its resolutions this committee took a stand in favor of a "unified six-year high-school course of study beginning with the seventh grade." A number of considerations were arrayed in support of this proposal. They found that educators agreed that the work of the seventh and eighth grades "must be enriched by eliminating non-essentials and adding new subjects formerly taught only in the high school." It was their belief that these reforms were to be more quickly effected by making these grades a part of the high school. They contended that "the seventh grade, rather than the ninth, is the natural turning point in the child's life, as the age of adolescence demands new methods and wiser direction." They were aware of the high student mortality due to the fundamental differences of organization in the elementary school and in the high school, and they expressed the opinion that the transition from one to the other "might be made more natural and easy by changing gradually from the one-teacher regimen to the system of special teachers, thus avoiding the violent shock now commonly felt on entering the high school." They, like the Committee of Ten, made specific recommendations looking to the introduction of secondary-school subjects in seventh and eighth grades.

It would not be difficult to find numerous further evidences of the growing consciousness of the need of effecting reorganization in the grades with which we are here concerned. We shall refer to one more report only, a report made in 1913 by the Committee on the Economy of Time in Education, almost a decade and a half subsequent to the appearance of the Report of the Committee on College Entrance Requirements. From the name it bore one is led to expect this committee to renew the emphases of the two committees already referred to. And this they did. But, as this committee deliberated during a period not remote from our own time, they did not rest with a mere reiteration of formulae which had by the time of the making of their report become commonplace. Instead, they carried forward the torch of educational reorganization. Doubtless, the advances made by them over the preceding reports were augmented by the assurance provided in the experimentations in reorganization which had in the meantime been begun. Without attempting to give a complete outline of the additions made by this committee to the thought on reorganization, it may be said that its report is the first to recommend the separation on horizontal lines, into two divisions, of the proposed six-year secondary-school period. One of the members in his individual report endorsed the sort of reorganization which was at the time of the preparation of the report finding place in a number of school systems—" (1) a junior high school of three

years extending from the twelfth to the fifteenth year; and (2) a senior high school, also of three years, covering the period from the fifteenth to the eighteenth year." "A three-year junior high school," said this member, "will assure a larger number of citizens possessing some cultural training of secondary-school grade than a six-year high school." Further evidence of this enhanced conception of economy through reorganization is to be found in the recommendation of the provision of "vocational lines of work beginning at 12, 15 or 16, 18, and 20." At the beginning of the seventh grade pupils "are already discovering the personal interests and limitations which point toward specific types of training and life work." Reorganization, through shortening the period of elementary and general education, "provides for a large number who will enter vocations at 16 . . ." Heretofore the economy desired was largely in the interests of those who will enter the professions. This offering of "practical studies" would have the additional advantage of retaining in school many who would otherwise drop out early. Through this retention and through the possibility in the junior high school of putting a larger proportion of the population in possession of some cultural training of secondary-school grade, we should be making strides toward democratizing the school system.

The contrast of this conception of the reorganization that should be effected with that to be found in

the Report of the Committee of Ten made twenty years earlier is so patent as not to require elaboration. In conjunction with the statements of the intervening Committee on College Entrance Requirements it is unmistakable testimony of the increasing clarification of thought concerning reorganization of secondary education during those two decades. At the same time, the similarities of statement and the sequence of ideas are evidence that the widespread movement for reorganization in which we find ourselves to-day is not the impulse of a moment, the unpedigreed offspring of irresponsible faddists, but the expression of a body of convictions that have been adding strength with years.

THE EXTENT AND VARIETY OF THE MOVEMENT

Such forces as those named in the opening paragraphs of this chapter, to the influence of which has been added the momentum of the history of the movement just epitomized, are responsible for the vast array of phenomena of reorganization with which we are now surrounded. The handful of reorganizations that had been effected by 1910 and to which were applied the terms "junior high school" and "intermediate school" has been multiplied until at the present writing, a decade later, the number is rapidly nearing a thousand. Thousands of other communities are giving serious consideration to the proposal to effect immediate or early reorganization. Millions are being

voted by some of these cities for buildings for properly housing the new institution. Junior high-school textbooks in a number of subjects have long been on the market. Hardly an educational convention meets which does not give the discussion of the problems of this new school a prominent place on its programs. Educational periodicals devote much space to articles on the junior high school. Departments of education in colleges and universities are offering courses concerned exclusively with its problems and these and other training institutions claim to be preparing teachers for it. State legislatures are enacting laws to authorize its establishment or to regulate its operation. These are some of the evidences that the junior high school is now one of our most engrossing educational concerns.

And, as is to be expected when such a new institution is under consideration, the extent of interest in the reorganization is hardly more protean than are the conceptions and forms of reorganization themselves. The variety of purposes and their combinations espoused by advocates of the junior high school are almost numberless and there is much disagreement among them. The forms the institution takes are likewise multifarious. In only two respects do the administrative features move toward identity, and these are in the mode of assignment of work to teachers (departmentalization or semi-departmentalization) and in the manner of advancement of pupils

(promotion by subject). Sometimes it includes seventh and eighth grades; sometimes seventh, eighth and ninth; sometimes only a single grade; and, again, as many as four grades. Curricula for junior high schools take a wide variety of forms and represent several types. Standards in the selection of teachers vary greatly from community to community. Admission requirements, methods, advisory systems, disciplinary and social organization, and buildings and equipment range through variation upon variation. In fact, the junior high school is hardly the same thing in any two communities.

THE AIM OF THIS BOOK

While this extent of dissimilarity should meet with approval during the earlier experimental stages of an institution, the junior high school has by now been with us long enough to urge us to take stock of its functions and of the features of organization by means of which these functions are to be performed. Certainly, if there is anything fundamental and permanent in all this experimentation—as most of those who are in touch with the movement believe there is—we should now be in a position to come nearer defining it than current opinion and practice have thus far given evidence of doing. It is the purpose of this volume to contribute to the clarification of thought which is imperative in this chaotic situation. Toward this end effort is first made to establish out of current educa-

tional thought and by the assistance of such findings of educational science as are available a tentative working statement of the peculiar purposes of this new institution. This is done in the chapter immediately following. The remaining chapters apply to the features of organization, i.e., to the administrative devices and changes which have found place in junior high schools, the test of the likelihood of the performance of those functions.

II

THE PECULIAR FUNCTIONS OF THE JUNIOR HIGH SCHOOL

THE FUNCTIONS OF EDUCATION

It is platitudinous in the extreme to say that the test of an educational institution is the extent to which it realizes the ultimate aims of education. While the statements of ultimate aims extant in the educational world are numberless and protean, the nature of many recent expressions is fairly well exemplified in the statement of "main objectives" made by the Commission on the Reorganization of Secondary Education of the National Education Association.[1] For our uses this statement is somewhat more appropriate than any other, since it is not the conception of ultimate aims held by an individual, but one which has had the endorsement of a group of educational leaders. It may be said, therefore, to be more representative of current thought and more nearly authoritative. This committee regards the following as the main objectives of education: (1) health, (2) command of the fundamental processes, (3) worthy home membership,

[1] *Cardinal Principles of Secondary Education.* U. S. Bureau of Education Bulletin, 1918, No. 35.

(4) vocation, (5) citizenship, (6) worthy use of leisure, and (7) ethical character. As the import of each of these categories is readily apparent, it is unnecessary to amplify. Because the third, fifth, and seventh of these objectives may, with little doubt, be comprehended by the term "social-civic" when broadly conceived, these seven objectives will, for convenience in subsequent discussion, be reduced to five.

The fulfilment of these aims, then, being the rôle of education, it is the function of the institution upon which we are focussing attention in this volume, the junior high school, to make its contribution to the achievement of this end. It must assist in the realization of the physical, the vocational, the social-civic, and the avocational aims—the ultimate aims of education. Its relation to the realization of the aim of training in the command of the fundamental processes, the "tools of intelligence and culture"—more a proximate than an ultimate aim—, may be inferred from the following quotation from the report of the commission to which reference has already been made: "Much of the energy of the elementary school is properly devoted to teaching certain fundamental processes, such as reading, writing, arithmetical computations, and the elements of oral and written expression. The facility that a child of twelve or fourteen may acquire in the use of these tools is not sufficient for the needs of modern life. This is particularly true of the mother tongue." Thus, in addition to doing

its share in realizing the four ultimate aims, the junior high school will continue the training in the use of the tools of education begun in the elementary school.

THE PECULIAR FUNCTIONS OF THE JUNIOR HIGH SCHOOL

But an examination of the literature on the junior high school shows that its friends insist that this institution is designed to facilitate the realization of these educational objectives to an extent impossible through the traditional organization. They write of certain "advantages" or "aims" of, or "arguments" for the junior high school which are readily classifiable as its *peculiar functions,* and will hereafter be so designated.

There are presented at this point the results of a canvass of a large amount of literature dealing with the junior high school—a canvass made with the aim of discovering what are more commonly accepted as the functions peculiar to this form of reorganization. For the purposes of the canvass the literature examined was divided into two classes, (1) public school documents, such as city school reports, pamphlets issued by the school authorities in description of junior high schools established in their communities and other similar materials, usually prepared by the superintendent or principal, and (2) statements of the aims, advantages, or functions of the junior high schools by other educational leaders. The latter group of state-

ments appeared in articles or editorials in educational periodicals, educational books, or reports of school surveys. The documents prepared by the local school authorities and intended primarily for local consumption were assembled by means of a circular letter directed to the superintendents of almost two hundred systems which have been reported as having introduced the junior high school or the six-six organization, asking for copies of any printed materials that may have been issued touching the reorganization effected. Matter of the sort called for came from about seventy systems. In the materials from thirty were included what seem to have been intended as more or less complete statements of the "reasons" or "grounds" for, or "advantages" of such reorganization as was being effected. The statements in the other group have usually been prepared for a larger audience, although they include three statements appearing in reports of educational surveys which have been intended primarily for local consumption. For the most part they are statements made by men of more than local, sometimes even national, prominence in education.

In exploring Table I and Figure 1, which present the findings of the canvass just described, for such significance as they may have, the reader should bear in mind that the task of classification sometimes presented baffling problems and that, therefore, in a small proportion of instances, it is not unlikely that a mis-

construction has been placed upon the words and their original meaning in some part perverted. There is a greater possibility of such misconstruction under Function I and its sub-functions than for any other, inasmuch as the writers did not always mention progress toward realizing a democratic school system when urging one or more of these sub-functions. There is, however, considerable assurance of the approximate accuracy of the percentages for these five sub-functions, as well as for the ten remaining functions.

In both table and chart the functions have been listed as far as possible in the order of their frequency of appearance. This order has been somewhat disturbed by the exigencies of the endeavor in some measure to recognize logical relationships. Nevertheless, it may be seen that Functions I-V (inclusive of Sub-functions A, B, C, D, and E) only are recognized in large proportions of statements. The remainder have not been as generally listed in the statements used.

The import of the functions as tabulated to the writers of the statements used will be shown by quotation of typical expressions to be found in those statements. The quotations will be followed in each case by a brief examination of the validity of the claims of the function to acceptance in a working list of legitimate peculiar functions of the junior high school.

TABLE I

FREQUENCY OF APPEARANCE OF PECULIAR FUNCTIONS OF THE JUNIOR HIGH SCHOOL

Peculiar Functions of the Junior High School	In Statements in School Documents		In Statements by Educational Leaders	
	Number	Per cent	Number	Per cent
I. Realizing a Democratic School System through				
A. Retention of Pupils	22	73.3	18	90.0
B. Economy of Time	19	63.3	17	85.0
C. Recognition of Individual Differences	16	53.3	19	95.0
D. Exploration for Guidance	12	40.0	15	75.0
E. Vocational Education	12	40.0	14	70.0
II. Recognizing the Nature of the Child	11	36.7	11	55.0
III. Providing Conditions for Better Teaching	14	46.7	17	85.0
IV. Securing Better Scholarship	6	20.0	7	35.0
V. Improving the Disciplinary Situation and Socializing Opportunities	14	46.7	14	70.0
VI. Effecting Financial Economy	6	20.0	2	10.0
VII. Relieving the Building Situation	6	20.0	1	5.0
VIII. Continuing the Influence of the Home	2	6.7	—	—
IX. Hastening Reform in Grades Above and Below	1	3.3	2	10.0
X. Normalizing size of Classes	1	3.3	2	10.0
XI. Relieving Teachers	—	—	2	10.0

FREQUENCY OF APPEARANCE OF PECULIAR FUNCTIONS OF THE JUNIOR HIGH SCHOOL

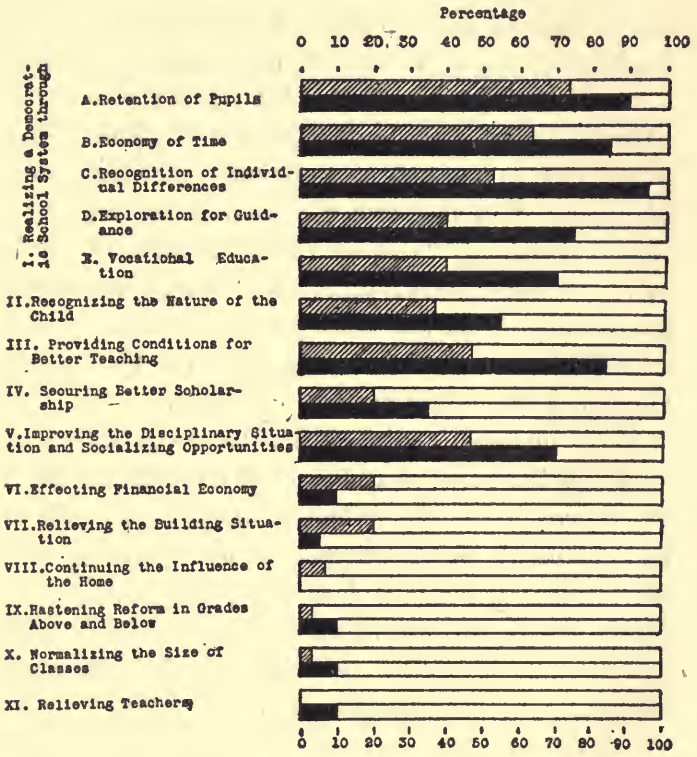

FIGURE 1.—Percentages of Statements in School Documents and of Educational Leaders Making Mention of the Peculiar Functions of the Junior High School. (Shaded, School Documents; Black, Educational Leaders.)

RETENTION OF PUPILS

As the first function, the *realization of a democratic school system,* must find its meaning in the sub-functions A, B, C, D, and E, they will be discussed in the order given. Examples of the statements classified under *retention of pupils* are: the junior high school aims to "reduce to a minimum the elimination of pupils," "to facilitate the continuation of every child's education," "to keep a larger number of pupils in school for another year," to "bridge the gap" between the eighth and ninth grades in the traditional organization, or "to render smoother the transition" from elementary to secondary education.

These quotations acknowledge large cognizance of an astounding pupil mortality from the fifth and sixth grades upward in the system, a mortality brought to light in many investigations. Inglis[1] has assembled the findings of three of these investigations, those of Thorndike, Ayres, and Strayer, on a comparable basis and shows clearly that, although the proportionate elimination is large between any two successive grades above the fifth, in terms of the percentage of those in each grade who do not enter the succeeding grade, it is greatest between the ninth and the tenth. As concerns all the six grades which it is now rather commonly advocated should be included in the period

[1] Inglis, Alexander: *Principles of Secondary Education,* pp. 128 ff.

of secondary education, the next largest proportionate mortality is between the eighth and ninth and between the seventh and eighth grades. The mortality between the grades above the ninth is relatively inconsiderable.

Studies of the distribution of enrollment in the four years of the traditional high school also call attention to the sudden decrease between the ninth and tenth grades. Thus, Counts'[1] figures for the distribution of students in the accredited high schools of the North Central Association show a much larger gross as well as proportionate elimination between the first and second years of the high school than between succeeding years.

While no careful thinker will ignore the enormous influence toward this elimination of factors that lie outside the school, there can be no question that our present organization of education is in considerable part to be held accountable for it. It is a truism to assert that there is much that is inherent in the organization of the upper grades of the elementary school not calculated to conduce to longevity of the educational career. The traditional grouping of grades into eight years of elementary-school work and four years of secondary-school work is itself an encouragement of termination of school life at the close of the former period. But the "gap" or "break" in internal or-

[1] Counts, G. S.: *Approved High Schools of the North Central Association of Colleges and Secondary Schools.* U. S. Bureau of Education Bulletin, 1915, No. 6, pp. 36 ff.

ganization exceeds that of this external grouping in its influence upon student mortality. The factors in the latter making for elimination may be illustrated by the changes in curricular materials from the elementary school to the secondary school, the one-teacher regimen of the former as contrasted with the departmentalization in the latter, and the complete disciplinary control in the former as compared with the larger freedom of behavior in the latter.

From facts like those just cited it is apparent that, as concerns holding in school a larger proportion of the school population for a longer period through reorganization, attention to reform may well be focussed upon the grades more commonly included in the junior high school, viz., the seventh, eighth, and ninth. This statement, however, in no sense implies an absence of need of reform in grades above and below those named.

When we examine the factual evidence mustered in support of the junior high school aiming to show the large extent to which this function of retaining pupils is already being performed, we find much material, but very little that can endure the light of careful thought. Many superintendents and principals have arrayed statistics purporting to show the increased holding power of the reorganized school, but almost all have left out of account the fact that, without reorganization along the lines here implicit, the upper grades and the high school have been drawing and holding larger propor-

tions of the possible school population. In a compilation from a report of the United States Commissioner of Education (1916, Volume II), Inglis [1] has shown that the number of pupils in public secondary schools has increased within a quarter of a century from 3.4 to 12.9 per thousand population, almost quadrupling the proportion of high-school students in that time. This has come about without reorganization along the lines under discussion in any considerable proportion of communities having high schools. This fact must in large measure discredit the claims that an increase in proportionate enrollment in the upper half of the public school system may be attributable entirely to the establishment of the junior high school. Improved economic conditions and social agencies and other forces outside the schools have done much to encourage many families to extend the period of schooling of their children.

A similar qualification must be placed upon the figures presented by Douglass,[2] who compared the percentages of retention in junior and senior high schools in 1915 with those found under the traditional organization six to eight years earlier by Ayres and Thorndike. A full reading of Douglass' report, however, shows that he was not unaware of the fallacy in the comparison. Nor are the data presented by

[1] *Op. cit.*, p. 119.

[2] Douglass, A. A.: "The Junior High School." *Fifteenth Yearbook of the National Society for the Study of Education*, Part III, pp. 101-109.

Stetson[1] for Grand Rapids likely to be accepted without question, although one is moved to concede that some part of the rapidly increasing enrollment in the junior high-school grades, especially of boys, may be ascribed to the influence of reorganization.

Childs[2] has made the most dependable investigation of the holding power of the junior high school which has so far appeared. He computed for cities of various populations, the percentage which the enrollment in grades 7, 8, and 9 was of the enrollment of the first six grades. This computation was made for cities in which the junior high school had been established and also for cities in which departmentalization only had been introduced. The percentages tended to be somewhat greater for junior high schools than for departmental organizations in cities of less than 20,000 population. The advantage was reversed in cities of a population of 20,000 and over and also when comparison is made of the percentages which the enrollments in grades 10, 11, and 12 are of the first six grades. By a comparison of the increases between 1907-8 and 1912-13 of "progress retention" through six half years of high-sixth-grade pupils in both these types of reorganization, he found that the advantage

[1] Stetson, P. C.: "A Statistical Study of the Junior High School from the Point of View of Enrollment." *School Review*, XXVI, 233-45.

[2] Childs, H. G.: *An Investigation of the Certain Phases of the Reorganization Movement in the Grammar Grades of Indiana Public Schools*, pp. 137-74.

was somewhat in favor of the departmentalized plan. In the latter comparison when boys alone were considered the junior high-school plan was rather strikingly superior.

A number of considerations detract from the feeling of finality given by the findings of Childs' study. One of the most significant of these is the failure of the investigator to set up a "standard" junior high school for the purposes of his comparisons. He classified the institutions for which data were supplied as junior high schools, departmental organizations, or non-departmental schools "on the basis of their own claims."[1] In the present chaos of conceptions of what constitutes a junior high school there can be little doubt that many of the schools claiming to be such are hardly more than departmentalizations or semi-departmentalizations. Evidences of this approximation of many self-styled junior high schools to mere departmentalizations is to be found in the data on the features of reorganization supplied elsewhere in the report. Again, the writer does not believe that, even in the few instances of rather thoroughgoing reorganization a large increase of enrollment will immediately follow on account of reorganization *per se;* it is still too early to test the holding power of most of our junior high schools. Lastly, a convincing comparison should also be based upon data from a larger number of systems than is sometimes used, including a more

[1] *Op. cit.*, p. 10

extended use of data from non-departmentalized schools.

Thus, the seeker after evidence to support the contention that the junior high school tends to prolong the pupils' educational life is confronted by an almost total absence of reliable factual material. He will take some comfort in such findings as have been mentioned, because it is hardly to be expected that the increase in enrollment which has been found may be ascribed entirely to causes lying outside the reorganizations effected. He will also take assurance from the large likelihood that the junior high school is holding boys better than does the conventional organization, especially since it is well known that boys rather than girls are eliminated from the latter. But he will rely mostly on his faith that the thoroughgoing junior high schools—and there are few such to-day—are destined in good time to overcome those causes of student mortality which lie within the school through provision, for example, of a wide range of curricular activities designed to make it possible for many who now fail and lose interest to find something at which they can succeed. They will also, in some degree, remove those which lie without the school, such as the indifference toward education of the homes from which these children come. Notwithstanding the absence of unequivocal affirmative evidence, there is abundant justification for anticipating, as one result of effective reorganization, a greater retentive power of the school.

ECONOMY OF TIME

We are told in such expressions as the following that the junior high school will *economize time:* the "tools of learning may be acquired in six years" and "the junior high-school student [may] turn his attention in part at least to secondary-school subjects;" in this institution we will have no more "unnecessary duplication" or "wasteful and discouraging reviews," but, instead, "the American common school will break into the secondary field;" the junior high school will do away with the "monotonous repetition of common branches prolonged unnecessarily at the expense of secondary subjects which should be begun;" "current practices [in Europe] lend no support to the policy of postponing entrance upon secondary-school work until the completion of eight or nine years' elementary study. . . ." A number of school documents make mention also of shortening the period of education by granting credit in the senior high school for secondary-school work covered in the junior high school or for "ninth-grade work taken in the seventh and eighth grades." The methods set forth for economizing time described "are in the interest both of the pupil who goes on and the one who does not."

In the history of the movement for reorganization this peculiar function was the first to be mentioned. Eliot in 1888 urged the shortening and enriching of curricula and since that time individuals and com-

mittees almost without number have importuned school authorities to abridge preliminary education. The stock argument, as is well known, has been the comparison of our own with European systems of education. This comparison is unfavorable to our system in that our period of elementary education is much longer, the beginning of secondary and higher or professional education thereby being indefensibly delayed.

The persistent emphasis upon this need for economy of time has been followed by a number of efforts in the direction recommended. Examination of school documents touching on this problem of economy of time discovers that the most common of these efforts is introducing into the seventh and eighth grades such secondary-school subjects as the foreign languages and some supra-arithmetical mathematics. This is often done without at the same time aiming to shorten the usual twelve-year duration of elementary and secondary education. Frequently, however, the earlier introduction of secondary-school subjects is accompanied by an administrative feature which is in the direction of cutting down this twelve-year period. Examples of the latter are to be found in those school documents which say, "Many graduates of the eighth grade enter the high school with one or two high-school credits," "credit is given for ninth-grade work taken in seventh and eighth grades," or "pupils who take [a foreign language] three years will receive two units of credit in the senior high school." The instances of more

daring variation from the norm of traditional practice that set out to reduce this period by a year or more for all pupils are deserving of special mention. With these must be included the reorganization instituted in Solvay, New York, in 1915, in which, after the conclusion of a six-year elementary-school period, the pupil who does not shift courses during his secondary-school career will complete it in five years. Another instance is the plan in East Chicago, Indiana, in which the program is so arranged that the twelfth year aims to cover the equivalent of the work of the first year of college. Somewhere between these two extremes of method of (1) granting credit in the years of the traditional high school for secondary-school work covered during seventh and eighth grades, and (2) boldly cutting down the twelve-year period to eleven for the normal pupil is that practice, borrowed from the four-year high school, which reduces this period for those of superior ability by allowing them the opportunity of carrying more than the normal load of work. No inconsiderable number of systems by this means shorten the period of elementary and secondary education by a half-year or more for stronger students.

But economy of time through the earlier introduction of secondary-school subjects into pupils' programs must be paralleled by the reduction in the amount of time devoted to the subjects regarded as appropriate to the elementary school. The two methods are inevitably complementary. Moreover, if the latter should

not be possible, the former must be regarded as inopportune. Since the appearance of the report of the Committee on the Economy of Time, in which was presented an enhanced conception of the procedure by which economy is to be effected, we have had notable progress in the second method. A number of investigations have been made, some almost conclusive, others suggestive of large possibilities of economy in the elementary field. Space is available for reference to a few only of these investigations.

Some of these studies have been concerned with the problem of making courses in the elementary-school subjects "in the light of social surveys of what men need in knowledge, habits, powers, skills and values." [1] One concerned itself with the errors made in English [2] by the children enrolled in the elementary schools of a large city system and the preparation of a course in grammar aiming at eliminating those errors. The findings prophesy a much smaller body of material for the course in grammar than has usually found a place in elementary-school curricula. Other investigations have sought to determine what words the adult will be most likely to find it necessary to spell [3] in material which he writes, with a view to preparing a minimal

[1] Report of the Committee on Economy of Time in Education. U. S. Bureau of Education Bulletin, 1913, No. 38.

[2] Charters, W. W., and Miller, E.: *A Course of Study in Grammar Based upon the Grammatical Errors of School Children of Kansas City, Missouri.* Bulletin of the University of Missouri, Vol. 16, No. 2.

[3] E. g., Ayres, Leonard P.: *Measurement of Ability in Spelling.* Russell Sage Foundation.

list which all children should be taught to spell correctly. The evidence of these studies points toward a much smaller list of words than we have in the past attempted to teach to our elementary-school children. Still another investigation sought to discover the range of abilities needed by the adult in arithmetic,[1] and, like the preceding, gives assurance of economizing time through elimination of non-essentials and through the presentation only of "what men need."

Economy of time in elementary subjects through scientifically selected methods, also advocated by the Committee on the Economy of Time, is perhaps best exemplified in the Report of the Committee on the Economy of Time in Learning.[2] This report essays the presentation of the principles of method, derived from scientific investigation, in teaching the common-school branches of writing, reading, spelling, arithmetic, drawing, and music. While it would be fatuity to contend that in this report or in those investigations into the materials of instruction to which reference has been made we have had assembled all the finalities requisite to a full solution of our problem, and while it seems improbable that the work in the fundamental processes may be limited to six years as has often been proposed, there is ample evidence that eight years is

[1] Wilson, G. M.: A Survey of the Social and Business Use of Arithmetic. Chap. VIII in *Sixteenth Yearbook of the National Society for the Study of Education,* Part I.

[2] Fourth Report of the Committee on the Economy of Time in Education. *Eighteenth Yearbook of the National Society for the Study of Education,* Part II.

more than should be devoted to equipping the normal child with such command of these tools as he will need in order to make possible his larger functional education.

The conclusion just drawn has the additional support to be found in the opportunity of abridging the time devoted to elementary education by eliminating many of the reviews with which curricula are padded. Verification of the fact of the prevalence and frequency of these reviews is furnished anyone who takes the pains to examine a number of typical courses of study.[1]

Genuine economy will require that the secondary or other subjects displacing the eliminated elementary-school materials, and the methods of presenting them, be subjected to the same sort of scientific scrutiny and vital educational philosophy as is illustrated in the studies to which reference has been made. Much less progress has been made in this portion of the task, perhaps in no small part owing to the unfortunate belief in the relative inviolability of the conventional high-school curriculum. Introduction of these materials unchanged into the program for seventh and eighth grades may hardly be regarded as a large stride toward democratizing the school system. We may anticipate that scientific methods of selection will bring

[1] Carolyn Hoefer presents a corroboratory study in the *Elementary School Journal*, XIX, 545-54.

into the program of the junior high school such portions of traditional high-school curricula and the methods of their presentation, or such new materials not yet finding a place in either elementary or secondary grades, as will make for genuine economy in the interests of such democratization. Such an economy will operate not merely to shorten the period of education for those who may be fortunate enough to be permitted to enter the professions, but in addition will provide a more effective education for the entire possible school population.

It should go almost without saying that no scheme of education is economical of time which does not have full regard for each pupil's progressing at a rate appropriate to him. A plan of organization which at any point requires him to mark time is wasteful. While little conclusive evidence is at hand to show that the junior high school is economizing time by moving all students as rapidly as they should go, it is apparent that expectation is largely in its favor. Through promotion by subject there will be eliminated the repetition of work in which a pupil has made a satisfactory record—a repetition which is all too frequently forced upon him because he has failed in one or more subjects under the conditions of promotion common to our upper elementary grades. The junior high school also, because it brings together larger numbers of children of given ages and grades than does the conventional

plan, may more readily group them in sections of approximately equal ability and adjust courses of study to the differences in ability of each group.

And it must be regarded as in the interests of economy of time for the over-age but normal child in the fifth or sixth grades to be advanced to the junior high school a year or two before his arrival at the close of the compulsory period and there to be given work more nearly appropriate to his maturity and the fact of the imminence of his elimination from school.

By means of the complementary processes of shortening the period devoted to elementary subjects and of the earlier introduction of functional secondary or other subjects—these processes to be guided throughout by the application of scientific method and a vital educational philosophy—and by means of administrative devices which will advance each pupil to higher levels as rapidly as he should go, the junior high school may be confidently expected in a democratic way to achieve a large economy of time.

RECOGNITION OF INDIVIDUAL DIFFERENCES

Illustrative expressions concerning the function of *recognizing individual differences* are: "One of the chief motives behind the junior high school has been the greater adaptability to the individual needs and individual differences;" the junior high school will recognize "inherent and universal natural differentiation;" it will make "better provision for individual

differences, abilities and tastes;" it will make provision for "preparation for the diversified duties of democratic society by giving full recognition to individual capacities and individual training;" it "will recognize individual differences and group pupils according to interests and ability:" it will "meet the varying mental capacities and economic needs of pupils;" it will "offer opportunity for over-age pupils regardless of scholastic attainments."

Variation illustrated.—There is abundant evidence of the fact of variation and of the need of making some recognition of it in the instruction and administration of our schools. Age-grade distributions now available for many school systems have emphasized the wide variation in chronological age in a single grade. This may be illustrated by the situation found in the seventh grade of the Ashland, Oregon, public schools in 1915.[1] In a group of only 82 pupils there were representatives of each age from eleven to seventeen, inclusive, showing a range of six years between the youngest and the oldest pupils (See Figure 2). Tables similarly constructed for school systems enrolling larger numbers of pupils in this grade show ranges of seven, eight, and even nine years. It is shown later in discussing the nature of the child, that these great differences in chronological age are paralleled by comparable differences in measurements of

[1] Ayer, F. C., and others: *Constructive Survey of the Public School System of Ashland, Oregon.*

physique, such as height, weight, lung capacity, and strength of grip. There are also wide differences in sex maturity of pupils of the same grade—, so wide, indeed, that some pupils enrolled in the seventh grade of a single school have been sexually mature for three or four years, while at the other extreme will be found those who will not arrive at pubescence until two, three, or even four years have passed.

But the variation is not physical only; it is also mental. The latter is illustrated by Figures 3-6. The first of these figures shows the distributions of the scores made in the Otis Group Intelligence Tests by 118 pupils in the eighth grade of the Santa Ana, California, public schools [1] and of 114 pupils in the ninth grade of the Thornton Township, Illinois, High School.[2] Both distributions emphasize the wide range of mental ability found in the same grade. In both groups there are children who obtained scores approximately three times as high as those obtained by children at the lower limit of the distribution.

The remaining figures (4-6), presenting the results of measurement of performance of seventh- or eighth-grade pupils in school subjects of study, display variation no less in extent. Figure 4, adapted from Gray,[3]

[1] Henry, M. B.: *Mental Testing as an Aid in Guidance and Classification of School Children.* Bulletin No. 1, Department of Research, Santa Ana, California, Public Schools.

[2] These scores made available through the kindness of Mr. O. W. Snarr, graduate student, University of Chicago.

[3] Gray, W. S.: Studies of Elementary-School Reading through Standardized Tests. *Supplementary Educational Monographs,* Vol. I, No. 1, p. 116.

shows a strikingly wide variation in comprehension ("quality") of silent reading among 271 pupils in the seventh grade of the Cleveland schools. Figure 5, taken from Willing's study of composition in the Grand Rapids schools,[1] illustrates the wide differences found in the work of written expression. Figure 6, presenting the distribution of scores of 78 seventh-grade pupils in Ellensburg, Washington,[2] as tested by the Woody Mutiplication Scale, Series B, is illustrative of a similar variation.

Almost all of these figures, despite the small number of pupils involved, approximate, at least roughly, the "surface of normal distribution" which finds most of the pupils grouped about the central measures of quality of performance with a symmetrical attenuation of numbers of pupils above and below the central measures. The persisting recurrence of this distribution has itself been no unimportant factor in convincing the scientific educator of the need of recognizing differences found. If such distributions appeared only occasionally, we should feel much less moved to action.

Another factor urging such recognition is the expanding range of variation as we proceed from grade to grade. The range is usually wider in the sixth grade than it is in the fifth, and in the seventh grade

[1] *School Survey*, Grand Rapids, Michigan, p. 92.
[2] Made available through the kindness of Dr. Clifford Woody of the Department of Education, University of Washington, Seattle.

than it is in the sixth. This tendency is partially checked in the upper elementary grades by what is termed "qualitative elimination," the tendency of the pupils doing poorer work to drop out near the termination of the compulsory school period. It will be definitely re-established, however, if the first peculiar function of retention of pupils discussed above is performed by the junior high school, and will, consequently, make increasing demands upon instruction and administration.

The tendency to diversity of *interests* of children may be briefly illustrated by Table II which names the occupational choices of 324 thirteen-year-old boys in the Springfield, Illinois, public schools.[1] The choices

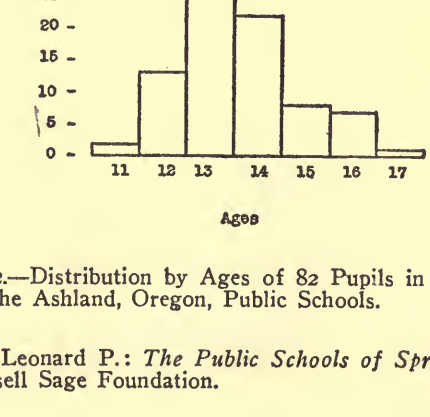

FIGURE 2.—Distribution by Ages of 82 Pupils in the Seventh Grade of the Ashland, Oregon, Public Schools.

[1] Ayres, Leonard P.: *The Public Schools of Springfield, Illinois.* Russell Sage Foundation.

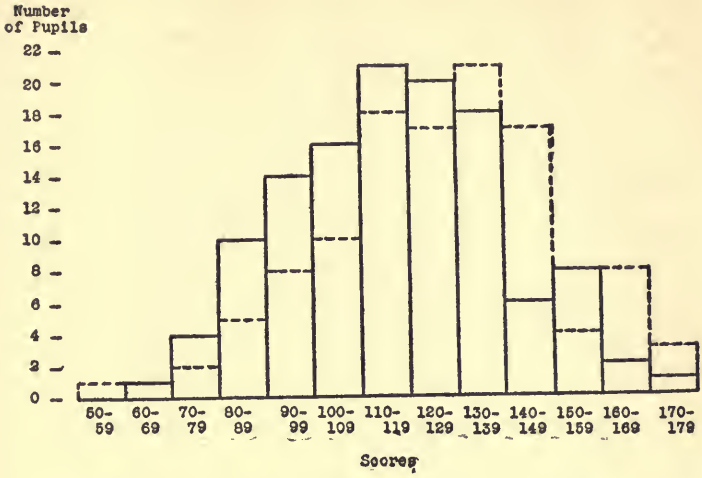

FIGURE 3.—Distribution of Total Point Scores Made by 118 Pupils in the Eighth Grade of the Santa Ana, California, Public Schools (Solid Line) and by 114 Pupils in the Ninth Grade of the Thornton Township, Illinois, High School (Broken Line).

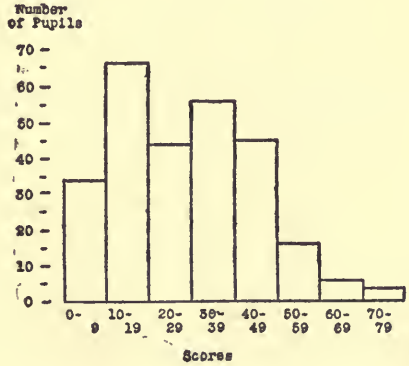

FIGURE 4.—Distribution of Scores for Quality of Silent Reading of 271 Pupils in the Eighth Grade of the Cleveland, Ohio, Public Schools.

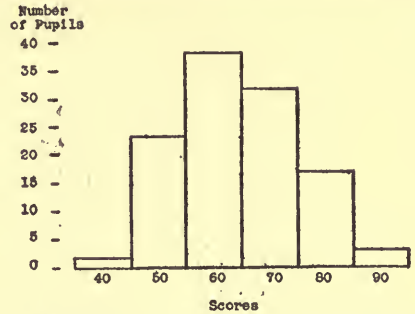

FIGURE 5.—Distribution of Scores in Composition of 115 Pupils in Grade VIII-2 in the Grand Rapids, Michigan, Public Schools.

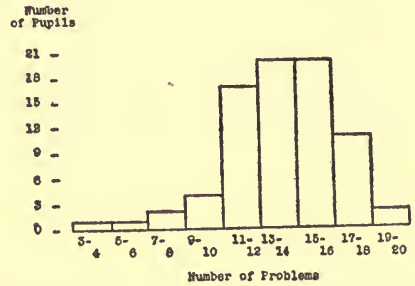

FIGURE 6.—Distribution of 78 Pupils in the Seventh Grade of the Ellensburg, Washington, Public Schools, according to the Number of Problems in Multiplication Solved.

of girls of the same age-group, not reproduced here, make the array of interests of children of this age even more diverse. Interests of children are, of course, not restricted to vocational lines. Those which may be classified in social, recreational, athletic, and other groups are perhaps just as multitudinous. Many of these interests are deserving of recognition in the edu-

TABLE II. OCCUPATIONAL CHOICES OF 13-YEAR-OLD BOYS IN THE SPRINGFIELD, ILLINOIS, PUBLIC SCHOOLS.

Occupation.	Number Choosing	Occupation.	Number Choosing
Farmers	40	Artists	2
Machinists	26	Aviators	2
Electricians	26	Managers and superintendents	2
Retail merchants	22	Barbers	1
Locomotive Engineers	19	Contractors and builders	1
Bookkeepers	19	Railroad foremen	1
Lawyers	17	Restaurant owners	1
Civil engineers	15	Mail carriers	1
Retail clerks	12	Brakemen	1
Carpenters	10	Linemen	1
Doctors	9	Tailors	1
Factory hands	7	Molders	1
Miners	5	Shoemakers	1
Traveling salesmen	5	Hostlers	1
Plumbers	5	City firemen	1
Architects	5	Sign writers	1
Stenographers	5	Plasterers and paperhangers	1
Teamsters	4	Chauffeurs	1
Butchers	4	Bankers	1
Stationery engineers	3	Commission merchants	1
Office clerks	3	Dairymen	1
Manufacturers	3	Undertakers	1
Blacksmiths	3	Stereotypers	1
Teachers	3	Dentists	1
Porters	3	Harness makers	1
Bakers	3	Politicians	1
Musicians	3	Baseball players	1
Train dispatchers	2	Soldiers	1
Street car conductors	2	Waiters	1
Laundry owners	2	Window trimmers	1
Patternmakers	2	Learn some trade	1
Florists	2		
Printers	2		

cational process, especially as the pupil nears the time of taking his place in adult life and activity.

The factors of variation.—It may not be out of place here to say a word concerning each factor of such variation as is found in school grades, inclusive of

those peculiarly operative in the grades we now commonly associate with the junior high school. They may be classified for our purposes as (a) inherited and (b) environmental factors and those attributable to (c) stage of maturity and to (d) sex.

We no longer question the determination of physical and mental traits by biological heredity, and we are becoming increasingly aware of the definite limits upon the possibilities of training fixed by the inheritance with which nature has endowed the individual. There is general agreement among the informed that there are differences, due to heredity both in physique and mentality, too great to be bridged by any adjustment of training.

Environmental influences are also ordinarily believed to be potent in making for variation between individuals of identical native endowment. Among these environmental influences are the kind of previous education in school, home conditions, inclusive of intellectual traditions, occupations, and recreational and other interests of members of the family, and neighborhood surroundings. These are in turn determined in no small part by "race differences," especially in cities whose populations are constituted in considerable proportions of recent immigration of peoples whose traditions and attitudes are notably unlike those of peoples who came to our shores a generation or more ago. These race differences, particularly as concerns mental differences, are now regarded as social rather than

biological, since "present-day anthropology does not pretend that any of the characteristic mental powers, such as memory, inhibition, abstraction, logical ability, are feeble or lacking in any race." [1] "There can be little doubt", says Boas,[2] "that in the main the mental characteristics of man are the same all over the world."

Mention has already been made of the wide variation in progress toward maturity, as measured by chronological and physiological age, to be found in any one of the grades included in the junior high school. The factors of biological heredity and environment must be admitted to be influential in determining these differences in maturity. The school itself—an environmental influence—is to be held accountable for somewhat unduly accentuating them. Sex differences also affect this variation, as girls on the average mature one to two years earlier than boys.

The differences between boys and girls are more in the nature of differences in physical make-up and in interests and tastes than in intellectual capacity. Equality in native mental capacity is now seldom questioned. The differences in physique which manifest themselves at puberty, among them the greater robustness of the male, are too obvious to require demonstration. The differences in interests and tastes are also

[1] Thomas, Wm. I.: Race Psychology: Standpoint and Questionnaire, with Particular Reference to the Immigrant and the Negro. *American Journal of Sociology*, XVII, 725-57, May, 1912.

[2] Boas, F.: *The Mind of Primitive Man*, p. 105.

readily apparent. It is difficult, if not impossible, however, to ascribe these definitely either to differences in native endowment or to the suggestions of the social organism in which boys and girls grow up. It is more than likely that they are attributable to both.

An individual pupil is, of course, the product of the action of all the factors we have thus briefly described. This fact is anticipative of an almost endless variety of make-up of pupils, as it is hardly to be expected that there will be many pupils in whom all the factors will be identically operative. The "average" child, as is often stated, is non-existent. The combination of factors will sometimes operate to diminish differences, but it will often make for wider differences than would otherwise be possible. This may be illustrated by the case of the child who is endowed with an inferior mentality who is born into surroundings unfavorable to intellectual progress or by the contrasting instance of one of superior mentality nurtured in a home in which the intellectual traditions and culture are of a high grade.

How the differences are to be recognized.—A big problem for education is to determine in what directions the individual differences in ability and interest are to be fostered and in what directions we should endeavor to diminish them. The solution must depend upon our decision as to the extent to which, in the realization of each of the ultimate aims of education set forth in the opening paragraphs of the

present chapter, we desire to achieve, on the one hand, differentiation and, on the other, similarity of personal make-up. There will be no disagreement with the statement that, as concerns the physical aim, our endeavors will be to bring our school population up to a uniformly high level of physical efficiency. But to accomplish this we cannot rely upon identity of educational procedure, since we find in the seventh grade, for instance, because of the varying operation of the factors of heredity, environment, maturity, and sex, an almost endless variety of physical organisms. Each of these will require some measure of individual treatment. An analogous situation obtains in regard to the achievement of the social-civic aim. In the vocational aim we shall need to strive more for differentiation. In the aim for training for the proper use of leisure time we shall probably find it desirable to secure both differentiation and similarity. For instance, while all children should be taught to make recreational use of reading, it will be necessary and desirable to guide reading interests in some part along diverging channels. Again, for those who are natively well-endowed musically it will be desirable to encourage training for participation by performance and for appreciation. For those not as well endowed appreciation only should be our objective.

The relation of this pressing need of recognition of individual differences to the demand for reorganization is not far to seek. In recent years there have

been many commendable efforts at improvement in school organization and methods of instruction in the grades of the elementary school directed toward such recognition. These have been well summarized by Freeland,[1] who, in a chapter on methods of adjusting school work to individual needs, makes mention of the necessity of studying each child, individualizing the recitation and assignments, adapting school requirements and courses to special cases, and modifying school machinery through provision of more frequent promotion, special classes, and special periods for individual work.

These modifications in school practice may be adequate for grades below the sixth or seventh, but with the greater imperativeness of recognizing individual differences at about this time, growing out of their actual increase and the child's rapid approach to maturity, they can no longer suffice. The schools must have recourse to the additional opportunities for such recognition provided by the junior high school in the expanded differentiation of work through partially variable curricula, groups moving at differing rates, promotion by subject, and supervised study. The first of these features is designed to recognize differences both in ability and interests. It is especially well suited for that point in their school careers when many children must and all children should

[1] Freeland, G. E.: *Modern Elementary School Practice,* Chap. XV, pp. 341-67.

begin to give more serious thought to vocational choice. The second is already being provided in some elementary schools, but may be seen to be more frequently feasible in the junior high schools with their larger numbers of children in any grade. The third makes allowance for the fact that many children cannot do equally well in all subjects of study. The last, although sometimes introduced in the elementary school, is more frequently found in the junior high school. One of the advantages rather commonly ascribed to it is its adaptability to recognizing individual differences.

Concisely, the junior high school, through the features of its organization which are impossible or less possible of provision in the traditional elementary school, will make a nearer approach to giving each child the kind of education he needs. This is a better approximation to democracy in education than is the complete identity of training for all children at which most schools still seem to be aiming.

EXPLORATION FOR GUIDANCE

Under *exploration for guidance,* educational and vocational, have been classified statements similar to these: "There will be an opportunity for pupils to explore several fields to see where they fit,"—they will thus "have a basis for making a selection when the time for specialization comes;" "in such a school it is possible in various ways to test each child and thereby

find out what are his natural interests, his ambitions, and his capacities;" the junior high school makes "provision for educational and vocational information and guidance;" the training in the practical arts "may help toward vocation finding." Here also have been classified those statements speaking of "prevocational education" in the sense of a curricular organization which allows the pupil to sample a number of activities with a view to a more intelligent choice of occupation. Other uses of this term have been classified under the peculiar function next following, vocational education.

This function of exploration for guidance is corollarial to the function just discussed, the recognition of individual differences, and, therefore, requires no extended justification. Granted that there are differences among our pupils sufficiently important to be recognized, it follows that we must provide the machinery for their discovery. Manifestly, also, this function must be performed *before* the differences may be discerningly recognized. The fact that reorganization of the right sort may be expected to hold a larger proportion of the children of school age than is being retained in school at present will bring additional need for the discharge of this obligation, just as it will bring greater need for the recognition of individual differences. It is likewise particularly urgent in the grades properly to be included in the junior high school, because it is in them that the bulk of elimination from school takes place. On account of the imminence for

many of the end of the school career and also on account of rapidly approaching maturity for all, there is in these grades a notable tendency to, as well as an appropriateness of, concern in the choice of an occupation.

It is to be conceded that there is some opportunity for exploration in the conventional school organization. The statement often made, that success in current school curricula is no index of success in adult life, does not square with the facts. The selective value of even the most conservative curriculum is incontestible.

On the other hand, neither such a curriculum nor those in the better elementary schools, extended as they now are by the addition of such subjects as shopwork and the home arts, can adequately perform this function. We shall need to have a thoroughgoing reorganization in the grades under consideration before we may canvass the child's abilities and interests satisfactorily or permit him to test them out. This purpose may not be accomplished without a much enriched and enlarged program of studies, including a wide range of academic and practical-arts subjects, administered with the performance of this function specifically in mind. Nor may we accomplish it without teachers who, being more in the nature of specialists in the lines they are teaching, have had more generous contacts with the world's work than have most of our elementary-school teachers. With such a program and such teach-

ers it will be possible for the child to become acquainted through participation and vicariously with the chief departments of human knowledge and activity. Add to these such features of school machinery as mental and vocational testing and a wide range of student activities, and the enhanced possibilities of exploration in the junior high school are still more apparent. Although these and the kind of program referred to are not yet frequently introduced into schools so named, the movement is distinctly in that direction.

The feasibility of providing most of these features may be seen to be dependent upon the presence in a given school of a larger number of children than are to be found in the upper grades of the usual elementary school. Therefore, the concentration of pupils accompanying the establishment of the junior high school should be regarded as distinctly encouraging such provision.

The more extended characterization of the features essential to the performance of this function is deferred to subsequent chapters.

VOCATIONAL EDUCATION

Under the head of the function of *vocational education* have been placed such statements as affirm that the junior high school is "helpful in . . . vocational training. Graduates of the junior high school would be old enough and would have received excellent train-

ing to enter a trade school or begin an apprenticeship." Again, this institution will "fit each individual, at least in a general way, to become an efficient worker in his chosen field." In the same vein is the statement that "it is possible and highly desirable [in the junior high school] to give [the pupils] such general training . . . as shall enable them readily to adapt themselves to the requirements of whatever occupation they finally enter." A few speak of prevocational education in an almost identical sense of general vocational education. A few others think they see in this new institution the opportunity for intensive training for specific vocations, although the trend of thought is clearly not in the latter direction.

The beginnings of vocational education are guaranteed to the pupil in the junior high school by the full performance of the function just discussed, exploration for guidance. If the pupil in this school, for purposes of guidance, is permitted to participate in a generous variety of vocational activities, he is at the same time receiving what may be termed "general" vocational training which should stand him in good stead, should he later enter, with or without subsequent vocational training, any specific occupation represented in the exploratory courses. Proper opportunities for exploration thus constitute, especially if the methods and processes of industry are illustrated, a sort of general vocational education which is a by-product of the achievement of another important function. This

measure of vocational education meets with little objection.

It is around the proposal to provide in the junior high school more extended training for specific vocations that most of the disagreement centers. Those who contend for it are prone to bring the charge that the failure to concede the necessity for such an extent of vocational education by its opponents is due to the trepidation of tradition-bound educators to entrance upon a program of serious vocational education. While this may not be wholly untrue, it must be apparent that there are real grounds for hesitancy. One of these is the relative immaturity of most of those enrolled in the junior high-school grades and the concomitant danger of thus early committing the pupil to narrow specialization. Another and very important one is what appears to be the infeasibility of the proposal, which has been well expressed in the report of the Cleveland Survey, from which the following is quoted:

"In the junior high school, as in the elementary school, the greatest difficulty in the way of trade training for specific occupations lies in the small number of pupils who can be expected, within the bounds of reasonable probability, to enter a single trade. Hand and machine composition, the largest of the printing trades, will serve as an example. In a junior high school of 1,000 pupils, boys and girls, the number of boys who are likely to become compositors is about five. But to teach this trade printing equipment occupying considerable space is

necessary, together with a teacher who has had some experience or training as a printer. The expense per pupil for equipment, for the space it occupies, and for instruction renders special training for such small classes impracticable. All of the skilled occupations, with the exception perhaps of the machinist's trade, are in the same case. An attempt to form separate classes for each of the eight largest trades in the city would result in two classes of not over five pupils, three classes of not over ten pupils, and only one of over thirteen pupils."[1]

The surveyors proceed to recommend the provision in the junior high schools of Cleveland of a "general industrial course" for "those boys who, on the basis of their own selection or that of their parents, are likely to enter industrial pursuits."

There is grave danger, however, in accepting recommendations on a local situation for universal application. It must be remembered that the Cleveland recommendations contemplated the establishment also of a separate vocational school where special training for all the important skilled occupations of the city could be given to those of proper age. It is conceivable that local considerations will sometimes urge provision within the junior high-school grades of training for specific occupations, especially in communities smaller than Cleveland where it is inexpedient to support separate vocational schools. This will be particularly necessary if there is larger proportional representation in these communities of special occupations due to the

[1] Lutz, R. R.: *Wage Earning and Education*, Cleveland Foundation Survey, pp. 48-49.

presence of certain industries. Examples of such a situation would be communities of ten to twenty thousand population in which there are one or two dominating industries calling for large numbers of skilled workers in but a few lines, as, for instance, machinists or furniture workers. Certainly, junior high schools in smaller agricultural communities can not fail to give some special training for farming pursuits, especially to boys whose school work is soon to be interrupted. The junior high schools of Vermont,[1] some of which are in communities where the provision of senior high-school work would be inadvisable, may be judged to be making just such an educational offering. Under this head would come the extended training in the home arts which should be offered in most junior high schools, at least to those girls who are destined to leave school without attending the senior high school. A large number of over-age children in the grades of the junior high school should always raise the question of the advisability of caring for their needs of specialization in the event that those needs are not or should not be cared for elsewhere in the system. These considerations are not adduced to support a conclusion that every junior high school must make provision for specialization of its pupils, but rather to ward off the opposite conviction, now too commonly held, that junior high schools

[1] Hill, C. M.: *Vermont Junior High Schools.* State of Vermont, State Board of Education, Bulletin No. 1, 1918.

should always refrain from giving such special training. Decision in one direction or another on this important matter should not be made without a careful canvass of the local situation.

The bearing of the performance of this function by the junior high school upon the justification of the establishment and continuance of the special prevocational school is unequivocal: while the failure to reform the work of the upper grades was sufficient vindication for the latter, the introduction of the former institution leaves its establishment or maintenance without defense. The concentration of pupils accompanying the introduction of the junior high-school plan makes it possible to do as much as, or more, along the lines of preliminary vocational education than may be accomplished in a separate prevocational school, and this also under auspices strikingly more democratic.

RECOGNIZING THE NATURE OF THE CHILD

Recognizing the nature of the child at adolescence is less frequently proposed as a peculiar function of reorganization than are all the preceding and at least two of the succeeding functions in Table I and Figure 1. The mode of expression ranges from the very simple statement that the junior high school was "called into existence to provide an educational transition for the intermediate period between childhood and maturity" to the more rhetorical of which the

following is representative: "It secures better adaptation of subject-matter, methods, and discipline to the adolescent age. The pubescent, or early adolescent, period begins with most children at the age of twelve or thirteen. With this period come important changes in physical structure and function, with decided corresponding changes in mental development. The boy of twelve or thirteen is not what he was at nine or ten. His childhood may still be in sight, but he has rounded a corner [*sic*]; he has passed a new milestone of life; by fourteen or fifteen he has gone over a hill and left his childhood days and ways behind" (!)

On account of the controversial character of the field involved, it is impossible to present substantiation for this peculiar function which can win anything like universal acceptance. There is, nevertheless, enough evidence, obtained by the methods of science and of common observation, that borders on the indubitable to furnish broad grounds for urging fundamental changes in school organization.

The most incontestable of this evidence concerns the physiological changes of oncoming maturity. It has been shown by Burk[1] that increments of stature in boys tend to become pronounced between the ages of twelve and one-half and fifteen and one-half years. In girls they appear one to two years earlier. These are paralleled by notable increases in weight during

[1] Burk, F.: Growth of Children in Height and Weight. *American Journal of Psychology*, IX, p. 262.

the same periods and, according to Smedley,[1] by increases in lung capacity. For girls the increases in the respect last named are not as marked as they are for boys, nor do they continue through as long a period. Unfortunately, the data used are compilations of single observations of large numbers of children at varying ages and not several measurements periodically for a number of years of the same individuals. It is almost certain that individual histories of the latter sort, if they were available in large numbers and were synchronized from the point of the first appearance of the signs of the "onset of puberty," would show more striking increments than those to which reference has been made. The fact of variation by three or four years of this onset in either sex very probably tends to level down the average increase.

Another fact of physical change at adolescence probably not exceeded or even equalled in importance of influence by any other so far mentioned is the modification of the relative rates of growth of the heart and arteries. The measurements of Landois are frequently cited in this connection: the ratio of the size of the heart to the cross section of the arteries changes from 25 to 20 at birth, to 140 to 50 at puberty and again to 290 to 61 at maturity. This augmented power of the heart results in an increased blood pressure which

[1] Smedley, F. W.: *Report of the Department of Child Study, Chicago, II,* pp. 13-14.

is accompanied and followed by growth in bodily tissues, the fact of which may be inferred from what has already been said, and by the more rapid development in sex and other organs whose complete functioning is characteristic of maturity. The bodily temperature rises to some extent during this period. It would be surprising indeed if this profound physical change were unaccompanied by changes in the emotional life of the child.

Although more recent thought, instanced by Moll and Freud, apprehends that the sex life of the child begins years before the first appearance of the external signs of puberty, there are few who will take exception to the statement that there is a pulse of sex interest near the time of their appearance. As has been stated, these signs do not manifest themselves at identical chronological points in the lives of all boys or of all girls. As our discussion concerns itself with adapting the organization of education to the changing nature of the child, the facts as to the percentages of boys and girls at each of the several ages who bear the signs of oncoming or arrived maturity are pertinent. They are presented here in tabular form. Table III, adapted from Crampton,[1] shows that less than a fifth of the group of boys at twelve and a fourth years of age examined by him bore these signs, that for boys at twelve and three-fourths years this proportion

[1] Physiological Age—A Fundamental Principle. *American Physical Education Review*, XIII, 150 (1908).

was almost a third, etc. Baldwin's data on girls [1] (see Table IV) show much larger percentages at approx-

TABLE III. PERCENTAGES OF PUBESCENT AND POST-PUBESCENT BOYS AT EACH AGE (*from Crampton*).

Age in Years.	Percentage.
12.25	18
12.75	31
13.25	44
13.75	59
14.25	74
14.75	84
15.25	90
15.75	95
16.25	97
16.75	99
17.25	100

TABLE IV. PERCENTAGE OF PUBESCENT AND POST-PUBESCENT GIRLS AT EACH AGE (*from Baldwin*).

Age in Years.	Percentage.
10.5	6.25
11.0	....
11.5	21.15
12.0	37.93
12.5	41.79
13.0	60.46
13.5	84.83
14.0	84.61
14.5	95.16
15.0	100.00
15.5	98.43
16.0	97.95
16.5	100.00

imately comparable ages. The disparity conforms in general to what has already been said concerning the differences in age of appearance between boys and

[1] Baldwin, B. T.: A Measuring Scale for Physical Growth and Physiological Age. *Fifteenth Yearbook of the National Society for the Study of Education*, 1916, Part I, Chap. I.

girls of the pronounced increments in height, weight, and lung capacity.

It is when we turn from the physiological to the psychological evidences of change in the nature of the child at adolescence that we move directly into the region of controversy. There can be little doubt that such measurements as have been made of the traits of childhood indicate no large sudden spurts in mental abilities comparable with those found in the realm of the physiological. But it must be remembered that these measurements have been limited to the more tangible processes of sensation, association, memory, reasoning, and the like. Because of the restrictions upon objective measurement attributable to the newness of the application of scientific method in psychology, they have not been concerned with the less tangible fields of interests and emotions. It is obviously just in the latter fields that we should expect to find the most profound psychic mutations of adolescence.

Another factor tending to detract from belief in these psychic changes has been the discrediting of the method of investigation by which the evidence presuming to establish them was collected by G. Stanley Hall and his school. It seems to the writer that it has been too readily assumed by some that discrediting this questionnaire method and denying the fact of profound change were accomplished by the same stroke of criticism. A method may be discredited and the phenomena with which it is concerned still exist.

The dawn of social consciousness which accompanies the arrival of sex maturity is so much a matter of almost universal observation as to leave little doubt in the minds of many thoughtful persons of its establishment as a fact. It will be attested to by most intelligent teachers and others who have opportunities to compare the natures of groups of adolescents and of preadolescents. It is no doubt not to be wholly accounted for by the mere approach or arrival of sex maturity. Few will deny that it could hardly attain its pervasive character without the support of other social instincts, for example the maternal instinct, gregariousness, and the desire for approval and "showing off." These, like the sex instinct, are more or less operative before the period of adolescence. It must be encouraged as well by the suggestions of adult society, which, of course, find a soil more fertile owing to sheer approximation of the youth to adulthood in stature and appearance and also by the rapid accumulation of experiences. Whatever may be the complex of causes that are urging the quickening of the social consciousness, there can be little doubt of its existence in the early adolescent and there can be little question that it is accelerated by the extensive physiological changes of some of which mention has been made.

Before it is possible to point out the bearing of reorganization in education upon the child's nature at adolescence, it is essential to know at what point in his

school career these changes in his physiological and psychological make-up take place. To secure information on this the writer has computed the probable percentages of pubescent and post-pubescent boys and girls in the seventh and in the ninth grades. This has been done by applying the percentages of boys and girls of the several ages who are pubescent or post-pubescent as shown in Tables III and IV to the data found in the age-grade distributions in a number of city school systems. In these computations the proportions of such boys in the former grade range from two-fifths to one-half of all boys enrolled, while for girls they range from three-fifths to seven-tenths. In the ninth grade the range is from seven-tenths to four-fifths for boys and from six-sevenths to ten-elevenths for girls. These figures make clear that, if the period of secondary education is to be coincident with the period of adolescence, the four-year high school begins too late for almost all boys and girls, and that the plan which begins secondary education two years earlier than now is better adapted to the incidence of change in nature of the child.

Despite the fact that this change comes rather rapidly and powerfully, there is slight justification for making sudden changes in school organization aiming at harmony with the nature of the child. This is because the change is not cataclysmic in any event, because it does not arrive at identical chronological ages for the two sexes nor for those of the same sex, and because pupils

of the same physiological maturity do not reach the seventh grade at the same time.

Nevertheless, the school reforms calculated to be better adapted to the changed nature of the child at adolescence must be little short of far-reaching. They must include a physical education that takes cognizance of the differences in physique between boys and girls and of the rapidly increasing strength of the former. They may not ignore the opportuneness at this time of sex education. They must recognize the fact that the pupil, now rapidly approaching maturity, will become increasingly impatient unless given a meatier mental diet than is provided in the conventional school —that his enlarging social consciousness will be better satisfied by the materials of a functional education rich in social, civic, and vocational interests, than by the repetition of the preliminaries of an education. Nor can they neglect to provide opportunities of participation in a well-planned and efficiently directed social organization of the school that will allow for expression of the pupil's social impulses. As most of these reforms are next to impossible in the traditional organization, we must look to the junior high school to bring them and thus to perform the function of recognizing the nature of the adolescent child.

PROVISION OF THE CONDITIONS FOR BETTER TEACHING

Providing the conditions for better teaching may be seen to assume large importance in the minds of those

who prepared both groups of statements introduced in the tabulations. There is little variation in the statements made from references to (1) improvement of instruction resulting from the specialization on the part of teachers which is made possible through departmentalization of instruction in the junior high school and (2) the fact that this reorganization can attract to the seventh and eighth grades teachers of more extended training than can the elementary school. Illustrative quotations from references to the former advantage are: "teachers [may be secured] who are trained in the subjects they will teach"; "the teaching is better done, since no teacher is able to teach a half-dozen subjects unrelated for the most part as well as he can teach subjects of his choice"; the junior high school "permits the teacher to come before his class with the enthusiasm and inspiration of a specialist." Quotations touching on the latter advantage are: it will be "easier to secure high-grade teachers, both men and women, than it is to get them for the grades"; "this organization will produce a demand for specially qualified teachers."

The proportion of those giving careful consideration to the problems of school organization who are still hoping to secure effective teaching under the one-teacher regimen in the upper grades is rapidly diminishing. Even after years of trial of the plan in which a single teacher endeavors to give good instruction in a wide variety of subjects, we must admit that it

is not often that we meet with a teacher of seventh or eighth grade who may be said to be effective in all the lines which she is called upon to teach. The long list of subjects itself is disheartening. We expect the same individual teacher to do superior work in reading and literature, grammar and composition, spelling, history and civics, geography, handwriting, arithmetic, music, drawing, physical training, and, not infrequently, other subjects. The task has been growing more complex and correspondingly more discouraging with the addition of each new subject ever since we began to branch out from the original three R's. Moreover, school authorities are obliged to regard themselves as fortunate if they are able to secure for this work teachers who have had as much as two years of training after high-school graduation.

The enrichment of the curriculum has made the work of teaching all the subjects in the elementary grades so large an undertaking that many systems have despaired of making the one-teacher regimen suffice and have long since introduced partial or complete departmentalization into the upper and intermediate grades—sometimes even in the primary grades. There is a tendency to departmentalize more frequently in the upper grades than in grades below them, thus reflecting the need for superior scholarship in subjects in the grades enrolling the more advanced pupils.

The advantages associated with departmentalization and with the better training of the teacher are more

likely to come with the junior high school than with mere departmentalization of the upper grades, because the program of the former is enlarged by the addition of subjects for the teaching of which the preparation of the usual elementary-school teacher does not at all prepare him. Securing teachers with more training will be encouraged also by the tradition of the more honorific character of teaching in the high school which will attach in some part to the junior high school. This will be especially operative if the salary schedule for the latter approaches that for the former. It is certain that reorganization of school systems in the smaller communities will bring more highly trained teachers, who are specialists in subjects, into the seventh and eighth grades, since the teachers in the senior high-school grades will teach these subjects in the grades of the junior high school. This is an important ground for reorganization in smaller communities.

An additional consideration argues for the conditions of better teaching in the junior high school—the vertical correlation that will follow departmentalization. Under the present organization the teacher of eighth grade is not fully aware of what is being taught and what methods are being used in a given subject in seventh grade. The teacher in the ninth grade is even more ignorant of what has gone forward in his related subjects in the eighth grade. Unlike this situation will be that in the reorganized school where the teacher will often carry his subject through

two, three, and, in small communities, more years.

It must be granted that too great confidence may easily be placed in departmentalization and more extended training as being themselves active in improving teaching. The best that may be demanded of them is that they provide the *conditions under which the work of instruction may be given latitude to improve.* The ultimate test of the realization of better teaching will not be whether our teachers have attended school longer or are teaching fewer subjects, but whether the process and product of instruction are superior to what is typical of the traditional organization. Although at present there is little or no indisputable published evidence affirming or denying the improvement, it is manifest that school authorities rest in the assurance that improvement will follow.

SECURING BETTER SCHOLARSHIP

A relatively small proportion of those who prepared the statements used in the tabulation mention the possibility of *securing better scholarship* on the part of the pupil. The hope centers in "study under supervision," "reduction of the number of failures," "the elimination of indifference toward the work" prevalent under the traditional organization, and the pursuit of some subjects through a longer period as a consequence of the downward extension of the secondary school.

Judging from the discussion of the peculiar function immediately preceding, this expectation of better scholarship should hinge to some extent upon the tendency of the junior high school to supply the conditions for better teaching. This inference is one merely from cause to effect: provided more effective instruction, a superior scholarship must result.

This expectation has the additional support of the fact that supervised study, an increasingly common feature of the junior high school, has been found to reduce the proportion of failures in high-school classes and otherwise to raise the standard of scholarship.

But advocates of the junior high school contend that better scholarship must follow also the changed attitudes of the pupil brought by other features of reorganization. Among the most important of these is the zest that comes from the study of new and more vital subjects and materials as contrasted with the present widespread indifference of pupils in upper grades toward the too frequent spiritless reviews and extensions of the fundamentals. This zest is heightened also by the opportunity given in most junior high schools for the election of courses in line with pupils' interests and attitudes. At the same time the privilege of election and other features of reorganization give them the sense of being agents in their own education.

As is the case with some of the other peculiar purposes whose justification we are examining, there is little scientifically derived evidence that the junior high

school is or is not functioning in the respect here under consideration. Stetson [1] has presented a study purporting to show that the scholarship as measured by the scholastic records of students who had attended the junior high schools in Grand Rapids, Michigan, was scarcely appreciably different from that of students who had attended schools having the conventional organization of the seventh, eighth, and ninth grades. This was true in junior high-school and senior high-school grades and for the records in both English and mathematics. But he admits that the curricula in these subjects were practically identical for both types of school, junior and non-junior. The report of the school survey of Grand Rapids gives further evidence that the reorganization was far from sufficient to bring about much improvement of the sort anticipated when it says, "The six-year high school as it is in operation in the city to-day is not fully such a school—if by the expression is meant . . . not only a change in the *form* of school organization, but also a pretty complete modification of the *subject-matter* to be taught, the *methods of instruction* used, the *mode of administration* employed and the *spirit of control and direction that dominates.*" [2] Surely, little improvement in scholarship may be expected without genuine reorganization.

[1] Stetson, P. C.: A Statistical Study of the Scholastic Records of 404 Junior and Non-Junior High-School Students. *School Review*, XXV, 617-36, Nov., 1917.

[2] *School Survey*, Grand Rapids, Michigan, p. 215.

Childs[1] investigated by the use of standard tests the ability in certain fundamentals of pupils in the eighth grades of reorganized and of conventional schools. His data tend to show that, in spite of the reduction in the amount of time devoted to these fundamentals in the former, the quality of achievement was approximately equal. However, little dependence may be placed in the findings of the study owing to the small number of pupils and schools included in the study and the presence of a number of variable factors. Among the latter are the character of the training the pupils in grades preceding the eighth and the absence of a concept of a standard junior high school to which reference has already been made. The small amount of assurance that may be had from it is in some degree increased by the knowledge that, as is shown elsewhere in his study, the junior high school tends to hold boys better than does the merely departmental organization. Since it is the boys who are to a larger extent eliminated in the more nearly traditional organization and since the average scholarship of those eliminated is lower than that of those who remain, figures which seem to show approximate equality in scholarship in junior and in non-junior schools, may actually signify superiority in securing better scholarship of the individual pupil.

What has just been said may justify the belief that, if the junior high school ultimately comes to retain

[1] *op. cit.*, pp. 122-34.

in school a much larger percentage of the possible school population, both boys and girls, as is rather generally believed, the central tendencies in scholarship will not be found to move upward. This belief has in it the support of the fact that elimination has frequently been shown to have been qualitative, i.e., a larger percentage of the poorer than of the better students drop out. And while we may be convinced that, through better teaching and through the recognition of individual differences, by means of supervised study, promotion by subject, partially elective programs, and other administrative devices, the individual pupil will do more satisfactory work, our methods of investigating the superiority of the junior high school in this regard will need to make certain that the groups being studied are really comparable.

IMPROVING THE DISCIPLINARY SITUATION AND SOCIALIZING OPPORTUNITIES

A large proportion of the statements used in the tabulation make mention of one or more ways in which the junior high school will improve the disciplinary situation and the socializing opportunities. This function is recognized in a wide variety of expression of which the following are illustrative: "discipline is simplified" by having the pupils under the control of more than one teacher during the school day; this "encourages self-direction" of pupils, as it throws upon them a greater extent of responsibility

than does the one-teacher regimen; the larger number of teachers with whom the child comes in contact, including a larger proportion of men than now found in the upper grades, has large social values; other social values are derived from the fact that children of the ages and grades included tend to make up a homogeneous social group for whom there may be "better supervision of social and recreative activities" than can be provided in the elementary school which includes eight grades.

Here, again, we look in vain for other than empirical evidence for substantiation of this peculiar function. The wide range of affirmation appearing may be classed under two main heads, (a) that which asserts that the "discipline" of the school, in the older and narrower sense of the term, inclines in reorganization toward a more nearly frictionless condition than has been possible under the usual organization, and (b) that which sees in the new plan the opportunity to enrich the child's social contacts to an extent not to be hoped for in the traditional system.

The prevalence of friction in attempts to secure, even by "good disciplinarians," passable behavior on the part of boys and girls in the upper grades of our eight-year elementary schools in an organization in which one teacher throughout a five- to six-hour school day gives instruction to the same group of thirty to sixty pupils, is a matter of common knowledge. The struggle is often so arduous that there is evidence that

sometimes the primary consideration in selecting teachers for and assigning them to these grades is the ability to police, rather than to instruct.

The testimony of majority comment is that, although the problems of discipline are not entirely eliminated, their frequency of emergence is much reduced, by the junior school. The improvement comes in part from the relief to the pupil in change of rooms and of teachers accompanying departmentalization. The change of rooms is at least partial recognition of the child's impulse for movement now too much suppressed by our sedentary school regime, while the change of teachers indulges to some extent his desire for variety. Comparisons of the programs of junior high schools and of traditional elementary schools show that the former include a more generous portion of subjects allowing for physical activity than do the latter, which often seem to be built on the assumption that the child is a sessile organism. A significant factor in improving disciplinary conditions must be the opportunities which reorganization provides for gradually shifting the burden of responsibility to the pupil himself. The conditions allowing for the shift of responsibility are to be inferred in part from the foregoing and in part from the mode of administration of programs of study which open to the pupil some choice in the subjects he is to pursue. This, joined with the indirect but far-reaching influence of a curriculum made up more largely of activities to

the effective performance of which the pupil is motivated, gives promise of real disciplinary progress.

The opportunities for expanding and enriching the social contacts of the child are of much more significance to educational progress than is the mere reduction of the total of vexatious behavior. Departmentalization may be expected to increase the socializing opportunities through bringing the pupil into touch with a greater number of teacher-personalities, each of whom will bring to him something which a single personality can not offer. This value will furthermore be enhanced by the more extended training and the broader social contacts that are more and more characteristic of the teacher in the junior high school. As this institution also is attracting more men teachers than the elementary school is able to draw under the most favorable conditions, there is progress toward a normal social environment which is too important to be ignored. The program of studies, departing, as it does, in greater or less degree from the limits fixed by elementary-school curricula concerned too exclusively with developing skill in the fundamental processes, moves toward the socialization of the materials of instruction.

Lastly, we have in support of the performance of this peculiar function the fact of the approach to homogeneity of age of the pupils enrolled in the new institution. In this school, when it includes the seventh, eighth, and ninth grades, we will ordinarily

have a range of age no greater than ten to eighteen years, with the extremes seldom represented. In the eight-year elementary school the range is often from five to seventeen. The development of an *esprit de corps* and the establishment of a relatively self-directed social organization with the narrower range of ages in the former school may be seen to be emphatically more feasible. Under the eight-year elementary-school plan it is a very common experience to find social, recreational, and athletic organizations limited solely to the pupils of the upper grades, evidencing a line of cleavage already present. The relative homogeneity of the junior high-school group will accelerate the growth of this vital phase of school life. Incidentally, the removal of the upper grades from the elementary schools will leave a more nearly homogeneous group in them and offer the opportunities of better development of social, recreative, and athletic activities below the seventh grade. Nor should we leave unmentioned the advantage to ninth-grade pupils of removal from a four-year school in which, because of their immaturity, almost all opportunity along these lines is wrested from them by upper-classmen, to a school in whose social activities they may more nearly realize themselves. At the same time, on account of their nearness of age, the pupils of the ninth grade will not similarly overshadow those in the grades below them.

Although among the more intangible values to be realized by the junior high school, the improvement

of the disciplinary situation and socializing opportunities is to be regarded as among the most desirable. With proper care in administering the new institution we may with certainty anticipate large results of the sort described.

OTHER PECULIAR FUNCTIONS

Examination of the proportions of the statements making mention of other peculiar functions of the junior high school, as presented in Table I and Figure 1, shows clearly that no remaining function comes in for anything like the frequent recognition of those already discussed. Sometimes this is owing to the fact that they are extraneous to the educational purposes of the school, and, in other instances owing to some other cause, as the unjustifiability of the function.

Those who make statements that classify under the function of *financial economy* in very few instances urge baldly that the total cost of education in the reorganized school is less than in the traditional plan. More often it is claimed that the cost per pupil is reduced through the concentration of pupils of the upper grades of elementary schools in large junior high schools, or through the better retention of pupils by the junior high school. Occasionally it is stated that reduction of costs accompanies the more intensive use of equipment in departmentalization.

It has been obvious for some time that the conten-

tion that introducing the junior high-school plan into a school system effects financial economy is ill-advised. It should be clear on *a priori* grounds that to provide satisfactory junior high-school education, with all that this implies in elective curricula, better-trained teachers, expensive plant, and adequate equipment, must cost more than to provide the kind of training characteristic of the upper elementary grades, since all items of cost involved will tend to approach those of the traditional high school.

Furthermore, we have statistical evidence that the junior high school is more expensive than the grade organization. For instance, Rugg showed in the Grand Rapids School Survey [1] that "segregation of the upper grades in the so-called intermediate school means a very considerable addition to the cost of instruction. A semester's instruction in the regularly organized eighth grade costs about $12.00 per pupil enrolled. A semester's instruction in the eighth grade as organized in the intermediate school costs very nearly $20.00. A regularly organized seventh grade costs about $11.00 per semester; an 'intermediate' or 'junior high-school' seventh grade costs very nearly $18.00 per semester." These figures are for instruction only—the largest single item of educational cost. Introducing costs per pupil for most of the remaining items would probably tend to magnify the difference found. Childs,[2] in the most complete study of costs in junior high

[1] p. 437.

[2] *op. cit.*, pp. 103-21.

schools which has so far made its appearance, finds them to be higher than for other plans of organization. The junior high school may mean educational and social economy, but financial economy may hardly be demanded of it.

How the establishment of the junior high school may *bring relief to the building situation* is shown by the following: "relief will be afforded our overcrowded high schools by retaining the ninth-year pupils in the intermediate schools"; "the crowded condition in several of the large grammar schools rendered prompt action necessary. At least nine additional classrooms were needed in different sections of the town and with the old high school lying idle and an abundance of space available in the new high school, to build expensive additions to existing schools did not seem sound business policy." From its nature we expect this function to arise only out of a local situation. While in instances like these the junior high school would doubtless bring the relief promised, and while it must be conceded that it is justifiable to use such an argument to hasten the establishment of the plan for its intrinsic values, it must at the same time be admitted that this function is, in itself, extrinsic to the process of education.

Two of the school documents speak of the opportunity which the junior high school gives of *continuing the influence of the home:* the proximity of the junior high school to the home "aided the parents in watch-

ing carefully over the moral development of the pupils . . ."; "it will make it possible for students to get a high-school education near their . . . homes at a time when they need to be under parental influence." These statements emanate from cities in which the junior high schools are nearer the homes than is the senior high-school building to which ninth-grade pupils would be required to go, were not the reorganized plan in operation. There is no doubt that these communities could be matched by others in which those advocating the junior high school would meet opposition on the ground that many children in the seventh and eighth grades must attend a junior high school more remote for them than the elementary school which they would attend in the absence of reorganization.

There can be little doubt that the coming of the junior high school in a system will *hasten reform in the grades above and below* those included in this institution. A thoroughgoing acceptance in practice of the principles around which the junior high school is organized will bring a demand for the application of those which are appropriate to other parts of the system. Curricular and other adjustments in two or three years of a school system must be reflected in the years above and below. But, however pervasive the resulting reform may be, it must be regarded more as a by-product than as one of the major peculiar functions of this school.

A few of those whose statements have been used for the figures in Table I say that the junior high school tends to *normalize the size of classes.* It does this through the concentration of pupils otherwise distributed to several elementary schools. It is inevitable that under the traditional plan some of the schools will have upper-grade classes too small or too large to be cared for in the most efficient manner. The junior high school, through handling larger numbers, can break them into groups more nearly of standard size, thereby avoiding on the one hand the expensive small class and the inefficiency of congestion on the other. This function must, however, be regarded as more local than universal.

Lastly, a few educational leaders see in the junior high-school plan an opportunity of *bringing relief to teachers.* This relief, they say, is one of the benefits of departmentalization, which requires less total preparation for the work presented each day. The conscientious teacher will be more nearly able during his working day under the conditions of partial or complete departmentalization to make such preparation for his classes as will aid him in coming before them with the assurance of his adequacy to the task at hand. This, coupled with the additional relief from disciplinary pressure required to control the same class group for five or six hours each school day throughout a semester or year, will lessen appreciably the drain on the teacher's reservoir of nervous energy. The

testimony of teachers who have worked under both systems is strongly in support of this expectation. Despite the desirability of this result of reorganization, because it is not one of the functions of the junior high school which concerns directly the education of the child—and it is for this purpose and not for the teachers that we have schools—, it will not be included in the working list of peculiar functions to be used in testing the junior high school.

THE LEGITIMATE EDUCATIONAL FUNCTIONS OF THE JUNIOR HIGH SCHOOL

In this chapter we have taken occasion to scrutinize, as best we may in brief and with the limitations of the present state of our knowledge of the institution, each of the peculiar functions of the junior high school posited by those who have been among the first to express themselves concerning its purposes or to attempt to realize them in practice. This examination seems to the writer to lead to the conclusion—to be held only until better light is available for re-evaluation—that the peculiar functions which may be regarded as legitimate are those named in our table and figure which are seen to have been more frequently proposed than others, specifically those appearing under I-V.

Although there is an absence of unquestionable evidence that the junior high schools are at present holding pupils better than does the conventional school

organization, there is basis for confidence that (1) thoroughgoing reorganization will remove many of the causes of elimination that lie within and even to some extent those that lie without the school. Through shortening the period now devoted to the tool subjects by elimination of non-essentials, and their more effective presentation by methods scientifically selected, through utilizing the saving thus made for subjects having greater functional possibilities, and through moving each pupil at a rate appropriate to him, (2) the junior high school may be expected to effect a genuine and appreciable economy of time. It is also much better adapted than is the traditional organization to (3) recognition of and (4) exploration for variation in abilities and interests of pupils. The accomplishment of the purpose of exploration for guidance through giving the pupil a wide array of vocational experiences will constitute at least (5) a beginning of vocational education for those whose school careers must be interrupted before or near the close of the junior high-school period. To be just to certain groups of pupils, especially the over-age, it may be necessary and advisable in some localities to supplement this meager beginning by special vocational training to be provided within this period. By achieving these five peculiar purposes long strides will be taken toward the performance of that larger function, democratizing the American public school system. The junior high school can also (6) better recognize

than can the traditional plan the important changes taking place in the child's nature at adolescence. It will (7) provide the conditions allowing for improvement of teaching. As a consequence of this better teaching and other influences for motivation an improved application of the pupil will result, which (8) will bring for the individual, if not for the school, a higher standard of scholarship. This superior application, joined with other agencies, (9) will bring a better disciplinary situation and, with still other reforms which accompany the junior high school, enlarge the socializing opportunities of the school.

Consideration of the working list of peculiar functions of the junior high school should not be concluded without the admission that they are not discrete purposes, but are, instead, much intervolved. Realizing one of them will often mean partially realizing several others. A few of these relationships have already been pointed out in foregoing pages. Other instances of such interrelation are the tendency to retain pupils following the recognition of individual differences, the economy of time resulting from the improvement of teaching, or the bettered disciplinary situation accompanying the recognition of the nature of the child.

These functions are to be regarded as *peculiar* to the junior high school in one or both of two senses, (a) as contrasted with those of the traditional organization of the grades it includes, and (b) as contrasted with the purposes to be achieved in the reformed school

in the grades above and below. In the former sense each of the functions is peculiar to the junior high school, since the present organization is not designed to encourage their performance. In the second sense few of the functions are exclusively distinctive of this new institution. For instance, it is obvious that time must be economized, individual differences recognized, better teaching provided, and disciplinary situations and socializing opportunities improved, not only in the seventh, eighth, and ninth grades, but in grades above and below those under consideration as well.

On the other hand, many, if not most, of the functions in this working list possess some measure of peculiarity as contrasted with the grades above and below. For example, retaining pupils is peculiarly appropriate, since it is between the sixth and tenth grades that the bulk of elimination from school takes place; although differences should be recognized and capacities and interests explored in other grades, we must do it here, if nowhere else in the system; from what has been said in the foregoing pages, this time is also especially appropriate for the provision of the beginnings of vocational education; and there is but one time in his life when the individual is adolescent and when the means of education must be peculiarly adapted to the changes then taking place within him.

THE RELATIONSHIP OF PECULIAR FUNCTIONS TO ULTIMATE AIMS

At the opening of the present chapter it was stated that the test of an educational institution is the extent to which it realizes the ultimate aims of education and that the junior high school, to justify itself, must make its contributions to the achievement of this common function of all schools. The intervening pages have been devoted to an endeavor to establish the valid peculiar functions of this new institution, *the relationship of the achievement of which to the realization of the ultimate aims of education is that of facilitation. The performance of these peculiar functions makes the realization of the ultimate aims more readily possible.* This relationship is so patent that only the briefest illustration is necessary for confirmation: without better retention we may not hope to accomplish as well our ultimate purposes, a proper economy of time must hasten their realization, a recognition of individual differences will guarantee their better approximation, etc. Thus, the junior high school must meet not only the test applied to every educational institution, but also the test of achieving its peculiar functions as a distinctive institution. How it should be organized and administered to accomplish these special purposes will be our next concern.

III

THE TEST OF THE ORGANIZATION

THE FEATURES OF THE JUNIOR HIGH SCHOOL

If the test of the junior high school as a distinctive institution is the extent of its performance of its peculiar functions, *the test of its organization must be the adaptation of the features of this organization to such performance.* All the essential features must be provided and they must be administered in a way designed to achieve the desired results.

A canvass of the administrative make-up of the junior high schools of the country shows a wide variety of combination of features of organization. A fairly complete catalogue of what seem to be the most significant of the features of reorganization found are the following: (1) the grades included, (2) the admission requirements, (3) the program of studies, (4) the distribution of work to teachers, usually by a greater or less extent of departmentalization, (5) the plan of promotion, more commonly by subject, (6) the methods of instruction, (7) the advisory system, inclusive of the disciplinary organization, (8) the improvement in the instructional and supervisory staff,

(9) the social organization, (10) the housing, and (11) the equipment.

In an attempt to clarify thought on the junior high school, particularly as to the relationship of its features to the performance of its functions, Figure 7 has been devised. It includes in its left-hand column the working list of peculiar functions established in the preceding chapter and, in the upper horizontal row, the list of features just named. By the aid of this diagram attention may be more directly focussed upon the question of the bearing of the presence in the junior high school of each feature upon the likelihood of performance of each function or upon the sort of variation of each feature best calculated to perform each function.

In the figure the squares formed by the intersections of the columns and rows are cross-hatched, single-hatched, or in outline, depending upon what seems to be the degree of importance of a feature under consideration, or of a particular variation of it, to the realization of a function. Cross-hatching has been used to indicate what seems to be a relationship emphatically important; shaded, important; and in outline, of little or no importance. For example, the feature of departmentalization is judged to be of great importance in exploration for guidance, vocational education, providing conditions for better teaching, and improving the disciplinary situation and socializing opportunities of the school, and it is important for

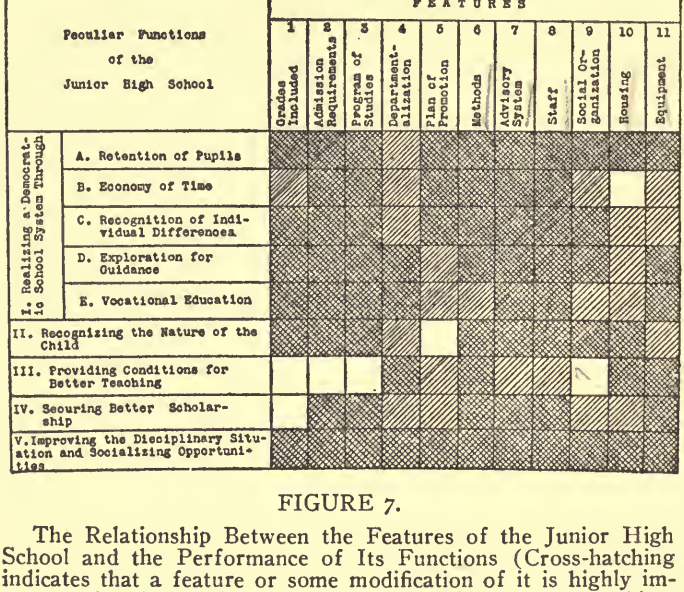

FIGURE 7.

The Relationship Between the Features of the Junior High School and the Performance of Its Functions (Cross-hatching indicates that a feature or some modification of it is highly important in the performance of a function; single-hatching, important; in outline, of little or no importance).

retention of pupils, economy of time, recognition of individual differences and the nature of the child, and securing better scholarship. These are, of course, only opinions, based upon such considerations as it has been possible to muster with the limited knowledge of the junior high school now available. They do not depend upon a full array of scientifically assembled materials. These it will take years and even decades to accumulate. But it illustrates the method of thought which must be pursued to defend the exclusion of a feature or a particular variation of a feature from the junior

high-school plan or the inclusion of one in it, or to choose between two or more variations of the same feature.

It requires but cursory thought upon the relationships between features and functions to force the conviction that the provision of only a few of the former, as is the common practice, cannot be expected to perform adequately all the purposes of the junior high school. This must be true no matter how important each of them in itself may be. Application of this test of the organization, as those in touch with actual practices in self-styled junior high schools must concede, will find but few of these new institutions equipped with the machinery for even as much as measurably accomplishing their large special purposes.

The remaining paragraphs of the present chapter will be devoted to illustrating the relationship of the features to the achievement of the functions by a brief discussion of the first two features named in Figure 7, (1) the grades to be included in and (2) the requirements for admission to the junior high school. The subjection of other features to the test of the likelihood of their performance of the peculiar functions is left for succeeding chapters.

THE GRADES TO BE INCLUDED IN THE JUNIOR HIGH SCHOOL

There are many variations as to the grades included. The more common practices are for the junior high

school to be comprised, in the usual twelve-year systems, of the seventh and eighth, or of the seventh, eighth, and ninth grades. Douglass' figures [1] show almost equal numbers following both practices, with a slight preponderance of the former. Childs' figures for Indiana [2] show a great proponderance of the latter. Data assembled by the writer from 49 unselected institutions give 16 as comprised of the two grades and 28 of the three grades (with 5 following other practices). There is also evidence that many of those who include only the two grades regard this as a temporary arrangement and plan in the course of time to add the ninth grade. Other practices as to the grade of beginning the junior high school are to be found, as the sixth or eighth. Other practices as to the number of grades included appear, as one or four. But these practices are much less frequent than are those already mentioned.

The beginning grade.—Questions of the sort here involved, however, may not be properly decided by mere weight of practice. They must be settled on the ground of the better performance of the peculiar functions by one of the several variations in use or possible. If the new organization is to be designed to hold pupils better, it must begin at a point near the time when pupils are starting to drop out in large numbers. This we have seen to be between the sixth and seventh grades. If we are to economize time in a democratic

[1] *op cit.*, p. 88.

[2] *op cit.*, p. 69.

manner, we must do so for those who will not remain in school beyond the eighth or ninth grade, and it is therefore urgent to begin the new school at a point no later than the seventh grade. Neither can we postpone to a grade beyond the seventh the provision of enlarged opportunities for recognition of individual differences, exploration for guidance, and the beginnings of vocational education particularly imperative for children of the age when they are beginning to sever their connections with the school. From the facts cited in the preceding chapter on the percentages of boys and girls in the seventh grade who are pubescent or post-pubescent, it is apparent that the changes in school organization adapted to the changes coming at adolescence should not be delayed to a point beyond this grade. Were it not for conflicting needs, such as the continuation of intensive training in the fundamental processes or the objection to sending children so young to schools as remote from their homes as will be many of the junior high schools, it might be appropriate to include the sixth grade. This would be especially true for girls, because of their earlier arrival at sex maturity. Lastly, owing to the pupils' rapid approach to the time when they will take their places in adult society—hastened, of course, by the physical and psychic changes of adolescence—the enlarged socializing opportunities may well find a place earlier than is now common.

The number of grades.—But the issue arising from

variation in practice does not emanate as much from the point of beginning, on which there is an approach to unanimity of opinion, as it does from the number of grades to be included. It is often stated that the system with the three-year junior high school may be expected to hold many children in school one year longer than will the system with the junior high school including only the seventh and eighth grades. Some advantage is to be anticipated from such a bridging of the gap in external organization. The three-year organization has been sometimes urged also because the longer period is better adapted to reducing for the brighter pupils the period of secondary education.

There are those who see in the two-year unit a better opportunity for adapting education to the vocational needs of pupils. They insist that the gradation of occupations as to the amount of training required for entrance is not by steps as far apart as three years, and that the three-year unit will therefore be administratively more unwieldy. It is occasionally suggested that we should carry the two-year-unit plan into the four-year high school by breaking the latter into two similar units. This will provide, with the tendency to two-year units observable in higher institutions, a series of two-year steps from the sixth grade to the professional school.

The two-year junior high school thus has a strong administrative argument in its favor. It is manifest, however, that it is applicable only to our largest sys-

tems and not to cities of moderate size and smaller; that it would add to, rather than subtract from, the problems of articulation between schools, and that it is not as well suited as is the three-year unit to the present tendency of laws on compulsory education to require attendance in regular day schools up to the age of sixteen years.

There is nothing in the nature of the child which recommends either the eighth or the ninth grade as the end of the junior high-school period. But it may be significant enough to mention that the opportunities for socialization of the ninth-grade pupils will be better in the junior than in the four-year high school, because pupils of this grade are usually so much outdone by the upper-classmen that their opportunities for growth along these lines are few. On the other hand, as has already been pointed out, they are not so much more mature than children of the seventh grade that they will in turn overshadow the latter. The three-three plan should better conduce to homogeneity of the groups than the two-four plan.

To those who find in the two-year junior high school the advantage that it will tend to disrupt the present organization less than will the three-year unit the advocates of the latter respond that one of the valuable by-products of the three-year plan is, that it does break in upon traditions and inspires reform. It will cause more fundamental reorganization.

The opportunism in the argument that the three-

year high school relieves a local building situation has been alluded to in the preceding chapter.

All the facts for the solution of the problem of the grades to be included in the junior high school are not yet at hand. Years will elapse before educational science and experience will give us the answer we need. But, surveyed from the point of view of the functions to be performed, the balance of judgment seems to be in favor of the three-year junior high school beginning with the seventh grade, rather than the two-year school. The plans which begin with the eighth grade or include but a single year have little more than the argument of temporization in their support.

ADMISSION REQUIREMENTS

The trend of thought in respect to admission to the junior high school is well illustrated by the following excerpt from a report adopted by the North Central Association of Colleges and Secondary Schools:

"The commission recommends that the admission of pupils into the junior high school shall be determined on the basis of maturity, and the ability of the pupil to profit by the junior high-school work offered, rather than by completion of the sixth grade solely. Therefore,

"(1) All pupils who have completed the first six grades of the elementary school should be promoted to the junior high school.

"(2) All mentally normal but retarded pupils should be transferred to the junior high school at least one full year before the legal age for leaving school. For

many of these, special educational provision must be made.

"(3) Other children should be admitted who have shown ability, even though they have not completed the sixth grade." [1]

Investigation of practices shows that they lag considerably behind this expression of what the requirements for admission should be. Often only those pupils who have completed all the work of the preceding six grades in a satisfactory manner are received into the junior high school.

The urgency of following some such practice as is suggested in this quotation is apparent after a brief consideration of the relationship of that practice to the realization of the peculiar functions. It will retain many pupils in school who would otherwise be eliminated, as they will avoid the distaste of being associated with pupils much younger than they, and will do some work which will seem more vital to them than the deadening repetition of the materials of a preliminary education whose value they cannot see. It will mean a saving of time for them, since they do not require almost exclusive training in the tools of education as much as contact with the materials of a more functional education. This need gains emphasis when we recall that many of them will soon no longer be in school and that they already have some skill in

[1] Proceedings of the Twenty-third Annual Meeting of the North Central Association of Colleges and Secondary Schools. Chicago, pp. 23-24.

the use of these tools. Such promotion *is* for them a recognition of individual differences. If they are not admitted to the junior high school, they must often end their educational careers without the opportunities of exploration or the beginnings of vocational education. It is also a recognition of the nature of the child, since there is a high correlation between chronological and physiological age. The admission of such pupils will not tend to raise the average scholarship of the school which they enter, but it will be helpful in effecting a change of attitude toward school activities which should result in better work on the part of the individual pupils concerned. As regards this group of pupils, also, the disciplinary situation and socializing opportunities will be improved. Their discontent with being taught in grades with and handled by methods appropriate to children much younger all too commonly erupts as a trying disciplinary problem.

IV

THE PROGRAM OF STUDIES

IMPORTANCE OF THE PROGRAM OF STUDIES IN THE JUNIOR HIGH SCHOOL

THE far-reaching significance of the program of studies of the junior high school for genuine reorganization is conceded by everyone who has followed the current of educational thought concerning this new institution. By many it is given first importance in the list of features of reorganization. The tendency so to regard it may be illustrated by reference to the tabulated opinions of "twenty-five Indiana school men actively engaged in the reorganization movement" as to which of eighteen "factors" were by them believed to be of greatest importance in the junior high-school organization.[1] These men had been requested to number the "factors" in the order of importance. The tabulation gives the first four ranks to (1) the "reorganized courses of study," (2) the "opportunity for pupils to take more extensive offerings in prevocational subjects," (3) the "provision for greater differentiation of curricula than under the old conditions," and (4) "opportunities for some pupils to take some subjects of the high school earlier, as for-

[1] Childs, *op cit.*, pp. 12-13.

eign languages or algebra." The fact that all of these are *curricular* features may be seen to reflect the prevailing conviction of the extensive bearing of curricular progress upon educational reform through the junior high school.

I. THE SINGLE-CURRICULUM TYPE OF PROGRAM OF STUDY

A canvass of the programs of study in operation in a large number of junior high schools shows that they tend to group into three main forms which we may designate as the *single-curriculum, the multiple-curriculum,* and the *constants-with-variables* types. The group to which a program belongs is usually readily discernible; it is only occasionally that it is difficult to determine which of two types it more nearly resembles.

The first of the types named, the single-curriculum, provided in a large proportion of schools, may be illustrated by the following program offered in a two-year junior high school:

Seventh Grade

Subject.	Periods Per Week.
English	5
U. S. History and Civics	5
Arithmetic	5
Geography	3
Manual Training or Sewing	2
Music	½
Penmanship and Spelling	½
Drawing	1

Eighth Grade

Subject.	Periods Per Week.
English	5
U. S. History and Civics	5
Arithmetic	5
Physiology and Hygiene	3
Manual Training or Cooking	2
Music	½
Penmanship and Spelling	½
Drawing	1
Physical Training	1

According to this program, all pupils take identical work, except that the boys have manual training while girls take sewing in seventh grade and cooking in eighth.

In this instance the content of the subjects listed is that usually found in these grades. It is manifest, therefore, that such a curriculum is only slightly better designed to achieve the peculiar functions of reorganization than the most conservative elementary-school curricula for upper grades and no whit better than the more progressive. It does little more toward retention and practically nothing to economize time. Its only recognition of individual differences is to be found in the manual training for boys and sewing and cooking for girls. The opportunities for exploration are likewise restricted and there is small provision for "general" vocational education. The advantage over the traditional curriculum for the recognition of the nature of the child, for securing better scholarship, and for improving the disciplinary situation and socializing opportunities is inconsiderable. In brief, the attainment of the ultimate aims of education, which the achievement of the peculiar functions is expected to accelerate, is hardly better encouraged by this program than by the usual elementary-school program. The only purpose that is likely to be adequately accomplished is the one most characteristic of the elementary school, viz., training in the fundamental proc-

esses. Thus, as far as concerns the program only. there is almost no defense for effecting reorganization in the school system in which this program is offered. Reform in content of the subjects listed would somewhat enlarge the opportunities to achieve the other purposes, but not enough to justify the type.

There are many programs of this type in the junior high schools of the country, some of them even more conservatively organized. Their ineptitude to the purposes of reform in education is so conspicuous as to make further demonstration unnecessary. The only excuse for them will need to rest in their being a part of a first step toward reorganization in which several other significant features are simultaneously introduced. Even under such conditions, the name junior high school seems inapplicable.

2. THE MULTIPLE-CURRICULUM TYPE

The second type of program of studies, found by the writer to be in use in more than a fourth of a large number of unselected junior high schools, includes those providing two or more curricula to be pursued by as many groups of pupils. It may be illustrated by quotation from the curricula for the eighth grade in a three-year junior high school:

EIGHTH GRADE

Academic
English
History and Geography
Science
Physical Training
Algebra
Latin or
French

Commercial
English
History and Geography
Science
Physical Training
Arithmetic
Typewriting
Bookkeeping

Home Economics
English
History and Geography
Science
Physical Training
Algebra or Arithmetic
Sewing or
Cooking
Interior Decoration

Manual Arts
English
History and Geography
Science
Physical Training
Algebra or Arithmetic
Woodwork
Drawing

The work for seventh and ninth grades is similarly distributed, except that in the former the work is to a larger extent identical in each of the curricula.

The number of curricula offered by schools in which this type is in use varies. In an examination of a large number of its representatives one may find a few providing but two curricula, e.g., the "general course" and the "practical-arts course." Five, six, or even more are found in use in some communities. For example, one may meet with a program listing curricula as follows: classical, academic, commercial, mechanic arts for boys, and domestic arts for girls; or again: literary-scientific, commercial, home economics, mechanic arts, engineering preparatory, and general elective.

The eighth-grade curricula cited demonstrate a characteristic common to almost all of the programs of

this type—they contain certain constant subjects and certain subjects peculiar to each curriculum. In the illustration, English, history and geography, science, and physical training are the constants, while algebra and Latin or French are peculiar to the academic curriculum; arithmetic, typewriting and bookkeeping to the commercial; algebra or arithmetic, sewing or cooking and interior decoration to the home-economics curriculum. The constants are sometimes taught with application to specializations suggested by the name given the curriculum. More often they are not.

This type of curriculum may not be intelligently evaluated without special recognition of the important implication that a pupil's enrollment in any one of the curricula is evidence that, in accordance with some decision either his own or of those guiding him, he is to enter an occupation within the field comprehended or suggested by that curriculum. This inference has the support of expressions such as the following occasionally to be found in literature descriptive of junior high-school programs of this type:

"General Course"

"For those going to high school and to enter classical and scientific courses. Also for those who desire to prepare to enter colleges and universities for a professional career. . . ."

"Commercial Course"

"For those who desire to qualify as soon as possible as candidates for positions in the commercial and business

world or clerical service, typewriting, stenography, bookkeeping and the selling trades. This course may be completed in two years or continued in the high school with profit."

"Vocational Course"

"For those who desire to begin the study of the fundamental requirements of the various manufacturing and mechanical trades and professions. The immediate practical knowledge, necessary for success in life will be emphasized in proportion to the number of years available for classroom study. . . . All students who have a limited amount of time for study and do not anticipate a high-school or college-preparatory course should enroll in this course."

Despite the brief description of this type of program its superiority over the preceding type in realizing the peculiar functions of the junior high school is at once manifest. At most points where the single-curriculum offering is inadequate, the type now being considered is pregnant with promise of fulfilment. In comparison with the traditional curriculum of the upper grades we may with assurance expect it to hold pupils in school better. The presence of subjects not found in the traditional upper grade program presages economy of time. For similar reasons it seems better adapted to recognizing the child's nature, to motivating him to effort that will result in his doing a better grade of work, and to improving for him the disciplinary situation and extending his socializing opportunities. It also has advantages along the lines of the beginnings

of vocational education and, through its different curricula, of recognizing individual differences.

But, with all its advantages over present-day upper-grade curricula and over the single-curriculum type of program, it harbors a danger too grave to be passed without challenge. *This danger lies in its failure to provide ample opportunity for exploration and in what seems to be the assumption that this period in the pupils' school careers is one in which they have already fixed upon the general vocational groups, if not the specializations, which they will enter.* This assumption may be true of some pupils, especially the over-age, but the ephemeral character of the occupational choices of the young children and the impossibility of thus early assuring a satisfactory exploration of and by the pupils brands this type of program as not fully appropriate.

Its advocates contend, on the other hand, that, as administered, the pupil may usually without penalty shift from one curriculum to another, and often does so. They suggest further that the dangers are largely mitigated by the provision in some plans of elective subjects in addition to those prescribed in the curricula. But, in spite of the fact that choice of curriculum may not be irrevocable, the presumption is against the facility of transfer from one to another There is likelihood, also, that too frequent changes will become irksome to those administering the program. The provision of additional electives is evidence that

the plan has already proved inadequate and that it breaks down in application because it is impossible to multiply curricula sufficiently to recognize all the individual differences in abilities and interests to be found in a group of pupils enrolled in seventh, eighth, and ninth grades.

We must find a type of program more in harmony with our desire for a democratic school system and defer the type we have been discussing, if it must be used, to the senior high-school grades from which it has been borrowed and where differentiation is more suitable after the function of exploration has been performed.

3. THE CONSTANTS-WITH-VARIABLES TYPE

The third form of program of studies, which we have termed the constants-with-variables type, is in use in an increasing proportion of junior high schools. The illustration of this type given here is drawn from a reorganized system in a middle-western state:

SEVENTH GRADE

Required Subjects (25 periods)	Periods Per Week.	*Elective Subjects* (5 periods)	Periods Per Week.
English	5	Latin	5
Arithmetic	5	French	5
History	5	English Composition	5
Physical Education	3	Industrial Arts	5
Industrial or Household Arts	3	Household Arts	5
Music	2	Agriculture	5
Drawing	2	Commercial Work	5
		Orchestra	2

EIGHTH GRADE

Required Subjects (20 periods)	Periods Per Week.	*Elective Subjects* (10 periods)	Periods Per Week.
English	5	Latin	5
Arithmetic	5	French	5
Geography, Civics	5	English Composition.	5
Physical Education	3	Industrial Arts	5 or 10
Chorus or Drawing	2	Household Arts	5 or 10
		Agriculture	5 or 10
		Commercial Work	5 or 10
		Drawing and Design.	5
		Music	5
		Orchestra	2

NINTH GRADE

Required Subjects (15 periods)	Periods Per Week.	*Elective Subjects* (15 periods)	Periods Per Week.
English	5	Latin	5
General Science	5	French	5
Physical Education	3	Industrial Arts	5 or 10
Chorus or Drawing	2	Household Arts	5 or 10
		Agriculture	5 or 10
		Commercial Work	5 or 10
		Drawing and Design.	5
		Music	5
		Mathematics:	
		Algebra	5
		Commercial Arithmetic	5
		Industrial Arithmetic	5
		Civics	5
		History	5
		Orchestra	2

According to the plan of organization of this type of program there are certain constant subjects pursued by each pupil enrolled in a grade and certain variable subjects from which he, with the co-operation of those guiding him, selects enough work to make for him a full curriculum. It is like the multiple-curriculum type

in its requirements of constants. It is different in that, instead of adding fixed subjects peculiar to each curriculum in the program, it allows for much greater variety of curricular make-up, permitting the pupil to come in contact with a wider range of variable subjects. A basic assumption in framing it is that the pupil may not, by the time he enters upon the work of these grades, have made a permanent occupational choice.

Careful scrutiny of this type of program will discover that it has all the advantages in the realization of the peculiar functions possessed by the multiple-curriculum program, and more. It will retain pupils, economize time, provide the beginnings of vocational education, recognize the child's nature, encourage better scholarship on the part of the individual pupil, and improve the disciplinary situation and socializing opportunities just as well or even better than does the second type. At the same time it *remedies the serious deficiency of the latter by making possible the performance of the function of exploration for guidance, a function too important to be disregarded* at this time in the child's school life. In addition it will tend to recognize individual differences more satisfactorily by permitting a much wider variation of combinations of subjects in the making of curricula.

Its only deficiency when compared with the multiple-curriculum program is its greater difficulty of administration. Because in the constants-with-variables type

of program the curricula of pupils for each semester or each year are not as predictable as in the second type, more time and effort must be given to advising with pupils concerning their curricular plans. The problem of making daily and weekly programs also becomes more intricate. However, in questions where the two are involved, educational needs must take precedence over administrative convenience, especially where the former has such vital contact with the realization of a democratic school system as is here involved.

The use of this third type of program does not preclude the desirability of mapping out, especially for the over-age or others who may have discriminatingly come to a decision upon a line of specialization which is to be begun, *suggestive* curricula adapted to the attainment of the ends the pupils have in mind. Such curricula will be found helpful in advising pupils and parents regarding work to be taken.

THE CONSTANTS AND VARIABLES IN THE PROGRAM

Having selected the type of program of studies appropriate to the junior high school, our next concern must be the determination of the constants and variables in the array of subjects. These must be chosen in such a way that the program will qualify on the tests already posited, viz., the accomplishment of the ultimate aims of education, of the proximate aim of training in the command of the fundamental proc-

esses, and of the peculiar functions of the junior high school.

Constant subjects.—In order to objectify the discussion, a list of the constants that should find a place in a three-year junior high-school program is first presented:

SEVENTH GRADE

	Periods per week.
English	5
Social Studies	5
Physical Education	3
Music *and* Graphic and Related Art	2
Mathematics	5
Industrial or Home Arts	5
	25

EIGHTH GRADE

	Periods per week.
English	5
Social Studies	5
Physical Education	2
General Science	3
Mathematics	5
	20

NINTH GRADE

	Periods per week.
English	5
Social Studies	5
Physical Education	3
Music *or* Graphic and Related Art	2
	15

In the program of which these subjects constitute the requirements a school week of at least thirty 50- or 60-minute periods (exclusive of assembly) is assumed,

thus leaving five, ten, and fifteen periods for variables for the seventh, eighth, and ninth grades, respectively. The periods per week assigned to each of the several constants and sometimes their place in any year are not presumed to be final as much as they are suggestive.

It must be admitted that, in the matter of the desirability of making any subject a requirement, much must depend upon the material and method. What the author has in mind for each of the subjects is roughly sketched in later portions of this chapter, where the reader must seek at least partial justification for the inclusion or exclusion of any subject.

As we should expect to achieve our aims in education—which are the focal points of our educational philosophy—largely through an effectively presented curriculum, we must find in them the guidance necessary for deciding upon the kinds of work which are to be required of all pupils of given grades. This has been done in fixing upon the array of constants listed above. Because we desire to achieve a high degree of physical efficiency in all pupils, there should be a requirement in physical education, in general science which to some extent touches upon hygiene, and in the social studies which concern themselves in part with the problems of community health. Because of our desire to integrate our society and realize in all the social-civic aim, a three-year sequence in the social studies has been introduced. The opportunities for

universal training of this sort are somewhat enhanced by some of the contacts in English and in the industrial and home arts. Some phases of recreational life are of such a character that they should be the common heritage of all cultured persons. These are represented in the reading interests recognized in the requirements in English and the social studies, in physical education, in music and the graphic and related arts, as well as at other points in the list of required subjects. As recreational interests are also by nature in part dependent upon the individual, much of the training in these fields is left for the variables and for the voluntary extra-curricular activities. The vocational aim applies so much in special to the needs of the individual that almost no constants are listed for its attainment. Its only recognition is the requirement of a year of home arts for girls and of industrial arts for boys, a course in vocational civics in the eighth grade as part of the work in the social studies, and the incidental vocational values in other constant subjects.

The necessity for continuing the training in the fundamental processes is also conceded in the list of constants. Development of ability in reading will be given some special attention in English and through application in other subjects. Training in written and oral expression is similarly supplied. Computational needs are met in the requirement of mathematics extending through two years. This will include work

in arithmetic and contact with such parts of algebra and geometry as are useful to all. The exclusion of handwriting as a special subject is explained later under the description of subjects of study.

The achievement of the peculiar functions through the constants may be inferred from what has been said concerning the types of programs of study. It should be mentioned, however, that even in the list of constants there is some opportunity for exploration for guidance. This is true not only of the special subjects like music, the graphic and related arts, industrial arts, home arts, and vocational civics, but also in the "academic" subjects, English, mathematics, and the social studies.

The variable subjects.—The wide range of curricular materials which may be drawn upon for use in the variables of a program is suggested by the following list assembled from the courses and school activities finding mention in the literature descriptive of the practices in a large number of junior high schools:

Academic
- Literature, 8, 9
- French, 7, 8, 9
- Spanish, 7, 8, 9
- Latin, 8, 9
- Ancient History, 9
- General Mathematics
- Algebra, 8, 9
- Plane Geometry, 9
- [1] General Science, 9

Agriculture
- General Agriculture, 7, 8
- Farm Crops, 9
- Gardening, 7, 8, 9
- Home Projects, 7, 8, 9
  - E.g., Poultry, Dairy, Hogs, Potatoes, Corn, Home Garden, etc.

[1] Certain special sciences, such as physical geography, botany, zoology, and biology, are also found in ninth grades.

Industrial Arts
- Benchwork in Wood, 7, 8, 9
- Carpentry, 7, 8, 9
- Cabinetmaking, 7, 8, 9
- Forging, 7, 8, 9
- Machine-Shop Work, 7, 8, 9
- Gas Engine and Automobile, 8, 9
- Sheet Metal, 7, 8, 9
- Brick and Cement, 7, 8, 9
- Electrical, 7, 8, 9
- Painting and Wood-finishing, 7, 8, 9
- Printing, 7, 8, 9
- Bookbinding, 7, 8, 9
- Mechanical Drawing, 7, 8, 9
- Applied Design, 7, 8, 9
- Pattern-Making, 8, 9
- Shop Mathematics, 7, 8, 9

Domestic Arts
- Sewing, 7, 8, 9
- Millinery, 7, 8, 9
- Costume Design, 7, 8, 9
- Textiles, 7, 8, 9
- House Decoration, 7, 8, 9
- Cooking, 7, 8, 9
- Marketing, 7, 8, 9
- Meal Serving, 7, 8, 9
- Dietetics, 7, 8, 9
- Home Nursing, 7, 8, 9
- Laundry, 7, 8, 9
- Home Management, 7, 8, 9
- Household Mathematics, 7, 8, 9

Commercial Work
- Penmanship, 7, 8, 9,
- Bookkeeping, 7, 8, 9
- Business Arithmetic, 8, 9
- Typewriting, 7, 8, 9
- Shorthand, 8, 9
- Commercial Geography, 9
- Commercial History, 9
- Clerical Work for School, 7, 8, 9

Music
- Technical Music, 7, 8, 9
- Music Appreciation, 7, 8, 9
- Choruses, 7, 8, 9
- Glee Clubs, 7, 8, 9
- Orchestras, 7, 8, 9
- Bands, 7, 8, 9

Graphic and Related Arts
- Freehand Drawing, 7, 8, 9
- Design, 7, 8, 9
- Lettering, 7, 8, 9
- Picture Study, 7, 8, 9
- Plastic Art, 7, 8, 9

Extra-Curricular Activities, 7, 8, 9
- School Journal
- Athletic Contests
- Dramatic Club
- Declamation Club
- Debating Society
- Literary Society
- Choral Club
- Assemblies
- Social Service Clubs
- Student Government
- Management of Student Affairs
- Boy Scouts
- Camp-Fire Girls

The numbers following each title represent the grade or grades for which the course, activity, or group of activities has been regarded as appropriate by those

administering the junior high schools in whose programs they were found.

Some items in the list are names of bodies of materials which may fittingly be organized into distinct courses extending through one or more semesters or years. Examples of these are the languages, general science, and many appearing under the non-academic classifications. Others, such as wood-finishing, marketing, dietetics, meal serving, and picture study, are usually not advantageously taught as separate units in the junior high school, but are preferably presented in combination with others. Still others will lend themselves to presentation by either of these two plans. Which procedure is to be followed in the last case must depend upon the amount of time that should be given to the activity to achieve the purpose in contemplation. Thus, if the purpose is exploration only, the time may be briefer than if the purpose is special vocational preparation. Combination with other activities to make a course will sometimes satisfy the former requirement, while presentation as a separate course will usually be necessary to satisfy the latter. Whether it is exploration or special vocational education which is to be provided must in turn hinge upon the local situation, as was indicated in a preceding chapter. Sometimes both will be desirable.

There has been added to the list a group of extra-curricular activities which have been found to be fruitful in educational returns. Their peculiar values are

to receive special attention in the following chapter, but the activities are named here because of a recent tendency to make them a part of every pupil's weekly program.

There is no pretension that all the activities listed are suited to the grades indicated. Only experimentation can settle this question. As all of them have been listed as being carried on in junior high-school grades, there is ground for confidence that very few will, by the trial of years and with the application of proper pedagogical skill, be found to be unadaptable. Perhaps as much question will be raised to listing Latin and algebra for eighth-grade variables and plane geometry for a ninth-grade variable as by any place assigned, but if discretion is used in admitting students of these grades to these courses, they will not be found to be beyond the mental capacities of the grades for which they are listed.

It is too much to hope that many junior high schools will soon offer as wide a range of variables as is represented in this list. The desirability of doing so is certainly not as much open to question as is the feasibility. With the importance of the purposes to be realized through them, to be presently reviewed, the list should be as large as possible. If the offering of variables must be restricted, it will perhaps be best first to omit those having the least immediacy to community needs in exploration and preliminary vocational education. It will be necessary to keep in mind

simultaneously, of course, the desirability of conserving the interests of the child.

The impression of the hopelessness of providing such a wide range of variables is somewhat mitigated when the activities are listed as follows:

SEVENTH GRADE

Modern Foreign Language
Industrial Arts
Domestic Arts
Commercial Work
Agriculture
Music
Graphic and Related Arts

EIGHTH GRADE

Literature
Modern Foreign Language
Latin
Algebra or General Mathematics
Industrial Arts
Domestic Arts
Commercial Work
Agriculture
Music
Graphic and Related Arts

NINTH GRADE

Literature
Modern Foreign Language
Latin
Ancient History
General Mathematics
Algebra
Plane Geometry
General Science
Industrial Arts
Commercial Work
Agriculture
Music
Graphic and Related Arts

Here the activities and subjects are grouped for the most part by the large divisions under which they classify and placed in the list for the grades for which they have been deemed appropriate. The arrangement shows also a number of variables increasing from the seventh grade to the ninth, which comports with the decreasing proportion of constants listed earlier in the chapter. This device is misleading in the opposite direction from that of the previous catalogue of activities and is not in the form in which the variables

should be listed in a program. For such use most of the titles should be made more specific and the numbers of periods should be indicated. At the same time it suggests better than does the full list the practicability of a generous provision of variables.

The rôle of these variable subjects in the achievement of the recreational and vocational aims in education has already been stated, although somewhat briefly: since realization of the former aim must be in considerable measure through differentiation rather than through efforts at integration, and of the latter almost entirely so, it is in the variables that this differentiation is to be effected. It should not be understood from this that the variables will be devoid of meaning for the two remaining ultimate aims. There is hardly an activity listed that may not incidentally or even very directly assist in the attainment of the physical and the social-civic aims. There must, for example, be contact between the courses in literature or general science and the social-civic aim, or between the courses in the domestic arts and the physical aim. But the bearing is chiefly upon the aims in which differentiation is permissible or desirable.

Essentially the same statement may be made for the fulfilment of the proximate aim of training in the fundamental processes. This aim being identical for all, must be achieved, as has been stated, through constant more than through variable subjects. Nevertheless, a moment's consideration will make manifest the

possibility of giving some such training in the latter, especially through application.

The influence of a generous list of variable subjects on the performance of the several peculiar functions of the junior high school is easily seen. Without doubt they will contain for many children a justification for remaining in school and for many parents for continuing their children in attendance. They will be of material assistance in economizing time. This will be true for the pupil who plans to prepare for a higher institution and may elect a modern foreign language or algebra in the eighth grade as well as for the one who knows he must leave school in a year or two and on this account elects subjects smacking of vocational preparation. The advantages of such a list in recognizing individual differences, exploring for guidance, and providing the beginnings of vocational education is too obvious to require illustration. We may anticipate also that accomplishing the remaining peculiar functions, excepting perhaps providing conditions for better teaching, will be notably encouraged. But to perform adequately all these functions, the offering of variables may not be niggardly.

CLASSIFICATION OF PUPILS ACCORDING TO ABILITY FOR PURPOSES OF INSTRUCTION

A number of junior high schools have already availed themselves of the opportunity, provided by the concentration of pupils of the given grades accompany-

ing the establishment of the new institution in all but the smaller communities, of grouping children of each grade according to ability and adapting the work to the capacity of each group. Such grouping is desirable, especially if, as has been advocated in the preceding chapter, over-age but normal children are to be advanced to the junior high school without completion of all the work of the sixth grade.

Differentiation of work on the basis of ability is accomplished by a rather wide variety of details of plan. Among the first instances of such differentiation in secondary schools is that described by Clerk[1] as in operation in a four-year high school. This is a plan which groups pupils in three classifications, (1) superior, (2) medium, and (3) slow, the pupils' assignments to groups being "determined by the teachers' observations and the pupils' grades." A number of junior high schools are now differentiating the work by plans somewhat similar, some of them in recent years supplementing the testimony of teachers' observations and pupils' grades by measures of intelligence obtained by means of such tests as the Stanford revision of the Binet Tests, the Otis Group Intelligence Tests, the Freeman-Rugg Tests, and the Haggerty Intelligence Examinations.

The grouping should be applied to all courses in which the number of pupils enrolled will justify and in

[1] Clerk, F. E.: "The Arlington Plan of Grouping Pupils according to Ability in the Arlington High School, Arlington, Massachusetts." *School Review*, XXV, 26-47, January, 1917.

which the instruction is not primarily individual, as it is, for example, in some of the courses in the practical arts. It will be more frequently applicable to the constant subjects than to the variables on account of the larger numbers of pupils enrolled in the former.

Although objections have sometimes been raised to grouping pupils according to ability, they are tending to disappear. The plan seems to be more suitable for the slower pupil, since he is not as much discouraged by his lack of capacity as when he is thrown in competition with the much more highly endowed. It is more satisfactory for the latter, since his progress is not impeded by the presence of the slow in the same group. Democracy in education is at the same time being conserved through each pupil's attempting to go at a rate more nearly suited to him and through the contact of all pupils with as nearly identical materials in the constants as the differing capacities of the pupils will permit.

THE SUBJECTS OF STUDY

There is essayed here a brief characterization of each of the subject-groups which have been introduced in the suggested program of studies. Each characterization attempts in a few strokes—sometimes, no doubt, too bold—to depict the type of content and mode of presentation which should obtain. It is admitted that descriptions of the sort attempted, on account of the limited lessons of educational science in

this field to date, may lay little claim to finality. But in preparing these statements the author has been guided by important reports of committees, by knowledge gained through an examination of a large number of descriptions which are being followed in the presentation of junior high-school subjects of study, by findings of such application of scientific methods to solution of curricular problems in these grades as have made their appearance, and by the aim to present a characterization which would seem to be adapted to achieving the special purposes of the junior high school.

English.—Most courses of study in English in junior high schools are disappointing in their too great conformity to the traditional in materials and methods. Not infrequently, for example, as in the usual upper-grade requirements, there are five periods per week of "reading" aiming at perfection in oral presentation rather than at rapid perusal for content, five of unapplied grammar, and about half as much spelling. Composition, oral and written, has received scant recognition in these courses in English for seventh and eighth grades.

The report of the National Joint Committee on English[1] is much at variance with the organization thus characterized. Its recommendations are for an equal recognition of literature and of composition. "The

[1] *Reorganization of English in Secondary Schools.* U. S. Bureau of Education Bulletin, 1917, No. 2.

essential object" of the former "is so to appeal to the developing sensibilities of early adolescence as to lead to eager and appreciative reading of books of as high an order as is possible for the given individual to the end of both present and future development of his character and the formation of the habit of turning to good books for companionship in hours of leisure." This statement demands training in reading through application for which the child is ready at this time in his school career, more than the enhancement of ability in oral reading almost solely. However, it does not preclude all attention to the latter. The composition is to include both oral and written work and is to be guided in some part by a functional grammar much less in amount than is conventionally presented. Regular work in spelling is to be continued in the junior high school, drill to be "centered upon the words that investigation shows are frequently misspelled by pupils of these years."

It does not seem necessary to require for this work in English more than five periods per week through the three years of the junior high school. About half of the time—perhaps two periods per week—should be devoted to instruction in literature, which should deal not only with materials intended for class use, but also with out-of-school reading. It may not neglect periodicals. The remaining time should be given over to composition, grammar, and spelling, the subject last named receiving perhaps ten minutes of attention on

days when composition or grammar appears on the program. The justification for reducing the total amount of time to be devoted to instruction in English which such a plan contemplates is to be found in part in the saving to be effected by eliminating a large amount of non-functioning grammar and in training in reading and expression which is to be given through other subjects of study, especially if all the purposes of these other subjects are properly held in mind in teaching them.

Among the variables listed in an earlier part of this chapter has been included a course in literature open to selection by pupils in eighth and ninth grades. The purpose of this course should differ in no important respect from that of the literary component of required courses in English as stated by the committee from whose report quotation has been made. But it would offer those pupils having the inclination the opportunity to extend under skilful guidance their reading contacts to wider areas. Such a course would be a special recognition of that large number of children who early manifest tendencies toward omnivorousness in reading interests.

The social studies.—A course in the social studies which seems to be adapted to assist both in achieving ultimate aims in education and in performing the peculiar functions of the junior high school should include the content suggested by the following list of subjects:

Seventh Grade
Geography (full year).
Eighth Grade
American History (half year).
Vocational Civics (half year).
Ninth Grade
American History (half year).
Community Civics (half year).

This plan of organization may be seen to include a year each of geography, American history, and civics. The question of whether the half year allotted to the subjects in the eighth and ninth grades shall be administered by completing the work in a subject by concentration during five days each week for a half year or by alternation on successive days throughout an academic year must await the answer of educational science. The year-place assigned, the amount of time devoted to, and the specific content to be comprehended by each subject should similarly not be regarded as fixed until we have had more opportunities for experimentation.

The nature of the work in geography and its extent must depend in no small part upon what is covered in the grades preceding the seventh. There can be no doubt of the possibility of finding enough material rich in social significance to occupy the pupils for five periods per week throughout a school year. Because of the very necessary presentation of physiographical foundations at earlier points in the work in geography and the presentation of others in the course in general

science prescribed for eighth grade, this work in geography should concern itself no more than is imperative with such materials. If the materials on "European beginnings of American history" or the European history appropriate to grades below the seventh have been deferred and the geographical materials stressed in their stead, it would be more fitting to reduce the time here assigned to the latter subject to a half year, and to present in the time thus gained the deferred materials in history.

The full year of work in American history will require no defense. Breaking it into two parts has been urged by the desirability of introducing vocational civics early enough to be effective in educational and vocational guidance with a larger number of pupils. This desirability is also a sufficient justification for deviation from the plan of organization presented by the Committee on Social Studies.[1]

The course in vocational civics—often called the "life career" course—should make a survey of the world's work and study a number of specific vocations as to their value in social service, the personal qualities required for participation, the preparation necessary, the remuneration, the working season, the status of the workers, etc. Such a course is too great in social-civic value and too essential to the performance of the exploratory function to be omitted from the

[1] *The Social Studies in Secondary Education.* U. S. Bureau of Education Bulletin, 1916, No. 28.

group of constants.[1] It might advisably be presented as early as the seventh grade, were it not that our program already provides for some such exploration through the practical arts required in that grade. The latter type of exploration should preferably precede that provided in the "life-career" course.

The course in community civics, as has been suggested by a Special Committee of the Commission on the Reorganization of Secondary Education,[2] should deal with such topics as community health, protection of life and property, recreation, education, civic beauty, wealth, communication, transportation, migration, charities, and correction. The need for such a course is manifest from its content.

There must be a place in the course in social studies in the junior high school for such principles of economics and sociology as are within the range of mental comprehension of children in these grades. As the materials of the courses already named will offer frequent opportunity for the presentation and illumination of these principles, to neglect to give them recognition will be to subtract much from the value of these courses. On the other hand, it does not at present seem feasible or desirable to present these materials in a separate course. There must also be frequent contact of the courses in the group of social

[1] Some junior high schools present the life-career materials as a part of the courses in English.

[2] *The Teaching of Community Civics.* U. S. Bureau of Education Bulletin, 1915, No. 23.

studies with matters of civic and social significance in current events.

In the suggested program of studies ancient history has been listed as a variable for ninth grade. There are many students in this grade who will desire this course and to whom it should be offered. Its remoter contacts with the needs of life when contrasted with the subjects we have listed in the prescriptions in the social studies do not warrant its being included with them.

Mathematics.—There is general agreement that there are certain computational abilities with which all should be equipped. Few will deny the importance also for present-day living of quantitative thinking and the need of training in mathematics for its encouragement. These needs touch several aspects of life, such as one's vocational labors, one's cooperation as a citizen in governmental matters, and one's responsibilities in other social and economic relationships. Much is being done in imparting these skills and in promoting the quantitative thinking during the first six years of the child's school life. More may be accomplished in these grades by a better selection of the materials and of the methods of presenting them, but not enough to free the junior high school of obligations in this connection.

Until the appearance recently of several sets of textbooks in mathematics for junior high schools, the courses in this subject have manifested little tendency

to break with tradition. They have been made up in most schools of the usual two years of arithmetic in the seventh and eighth grades and beginning algebra in the ninth, all of this work being required of every pupil. As almost all the new texts have in common the characteristic of including to a greater or less extent the supra-arithmetical materials in the course for seventh and eighth grades, their introduction has led to a corresponding change in courses in junior high schools. Despite these changes algebra still remains a constant in ninth grade.

The vocations into which our students go will demand differing amounts of training in mathematics. Some of them will require little or none, others will require ability in arithmetical operations only, while still others will need a knowledge of higher mathematics. The non-vocational demands for computational ability and for quantitative thinking which will apply to all will be limited for the most part to the arithmetical. After all possible efforts at the saving of time through eliminating useless materials and through selecting the most effective methods of presentation, we shall probably have need to continue to train in the seventh and eighth grades for accuracy and speed in the fundamental operations. Another large portion of the time to be devoted to required mathematics should be spent upon the social and economic materials, both computational and informational, such as banking methods, investments, mortgages, keeping

simple accounts, building and loan associations, taxes and public finance, and life insurance. Here will be given those portions of commercial arithmetic with which all should come in contact.

The earlier arguments for introducing algebraic and geometric materials into seventh and eighth grades were drawn from a comparison of European and American schools in which it was found that the former give these subjects place earlier than do the latter. Such evidence is, however, better proof that the earlier introduction *may* be accomplished, than that it *should* be.

But there is a growing conviction that there are portions of algebra and geometry which are of sufficient value for the purposes we have set down to be required of all somewhere in these two grades. The solution of many arithmetical problems is made easier even by the meager knowledge required in such processes as evaluation, the solution of simple equations, or in simple problems in ratio and proportion. At the same time skill in these processes is to be regarded as propaedeutic to other subjects sufficiently important to find a place in the curricula of most students who go on through the junior and senior high school.[1] There is no evidence that the elementary operations

[1] Rugg, H. O., and Clark, J. R., in their monograph, *Scientific Methods in the Reconstruction of Ninth-Grade Mathematics* (University of Chicago Press), present the best study extant on the supra-arithmetical mathematics most needed for propaedeutic and vocational purposes. Unfortunately it throws little light on how much of this may be presented in the seventh and eighth grades.

to which reference has been made are out of reach of the ability of average seventh- and eighth-grade pupils. There are portions of geometry, also, which are sufficiently fundamental to be included in the curricula of all pupils. They are mostly concrete and constructive, i.e., non-demonstrational, and, therefore, more likely than the demonstrational to be within the comprehension of pupils in seventh and eighth grades. It does not yet appear that, if these parts of algebra and geometry which should be required of all are to be added to the work in arithmetic as characterized, more than two years will be necessary for effective presentation of this arithmetic, algebra and geometry. This will be more nearly true if the mathematical operations peculiar to other subjects are taught at appropriate points in those subjects where it is pedagogically economical to present them.

The additional mathematics necessary for efficient participation in specialized vocational labors should not be required of all pupils indiscriminately, but should be listed with the variables. Here would be included the extended commercial, household, and industrial arithmetic planned for those who will find their work in the business world, in the home, and in the shop, respectively. Here also must be included the full-year courses in algebra, geometry, or correlated higher mathematics, necessary only for those who enter occupations requiring more extended training than is required for those whose school careers will

end when they have completed the junior high school. Many—perhaps even most—pupils going into the senior high school would elect algebra or general mathematics in the ninth grade. Whether the individual pupil should so elect mathematics may be in part determined by his ability to handle those portions of algebra and geometry introduced into the preceding grades. Especially capable pupils planning to enter occupations requiring more extended preparation in mathematics should be encouraged to elect the courses in supra-arithmetical mathematics in eighth and ninth grades.

General science.—There should be no need, in this day of man's rapidly expanding mastery over the forces of nature through achievements in science, to contend at length for the desirability of making generous recognition of materials in this field in the curricula in junior high schools. Nor should we continue to defer these contacts to such a time as will, because of elimination, preclude giving such training to large proportions of the school population.

The grades of the modern elementary school must do more than has been done in most of our schools to date in introducing the child to these materials through courses in nature study, in geography, and hygiene. There will be occasions for giving instruction in science incidentally in some of the courses in the junior high school. This will be true of geography, in which, even while stressing the social, there must

be some recognition of earth science. It will be true of physical education, and of the industrial, agricultural, and home arts.

But a field as significant in fitting young people for life in the modern world may not be left to incidental contacts; it must be given special recognition in separate courses. And it is this which prompts the listing of a course in science as a constant in the eighth grade and as a variable in the ninth. It is made variable in the latter grade because there will be individual pupils, especially among those leaving school early, whose best good will be conserved by a greater latitude of election. Most pupils should have general science through both years.

There is almost common agreement that the first course or courses in science in the earlier years of a six-year secondary-school period should be general science. Its suitability as beginning work may be partially shown in the aims regarded as most important by teachers of the subject: (1) understanding, appreciation, and control of one's everyday environment, (2) appreciation of the applications of science in industrial and social life, (3) a fund of valuable information about nature and the sciences, (4) training in the use of scientific method in solving problems, and (5) preparation and foundation for later study of special sciences.[1] To achieve these purposes to any

[1] Howe, C. M.: What Eighty Teachers Think as to the Aims and Subject-Matter of General Science. *General Science Quarterly*, II, 445-58, May, 1918.

adequate extent in the time available the materials of the courses must be selected in such a way that the instruction will disregard the man-made boundaries between the special sciences, that it will be superficial and extensive rather than exhaustive and intensive, and that it will solve among others the most frequently recurring problems of the locality in the realm of natural science. No courses have appeared which have been constructed on scientific surveys of what are the most important of the many problems and on careful experimentation as to adaptability to these early years. What seem to be the better textbooks among the large number appearing are those which use as units of instruction problems which center around processes or devices used in modern life and not those which strive to preserve the artificial boundaries by classifying the units under the special sciences of physics, chemistry, botany, zoology, etc.

The foreign languages.—There have been listed in our suggested educational offering the foreign languages at the date of this writing most frequently finding place in high-school programs of study. These are French, Spanish, and Latin. All have been included in the variables. The modern languages are proposed for all the grades of the junior high school, Latin for the eighth and ninth only. There are no doubt communities in which it will be deemed desirable to include foreign languages other than those named, and still other communities in which it will

be advisable to omit one or more of them. The languages to be offered and their number and extent in any school must depend upon the nature of the demand for them and the feasibility of including them in the program in the light of other curricular needs.

There is a growing conviction that the American secondary school has over-recognized the field of foreign language and that far too large a proportion of those in attendance have had work in it. This conviction has gained point especially since the educational world has arrived at a more discriminating conception of the theory of general discipline than was formerly prevalent and the accompanying discovery of the limited area of contact with the ultimate aims of education of the knowledge of a foreign language to be gained in a few years of study. The clarification of objectives in each subject which seems now to be on the way will be followed by a decline in the proportion of secondary-school students taking the foreign languages.

Nevertheless, there will perhaps always be those who should have open to them the opportunity of the study of some language other than the mother tongue. There are reasons for providing this opportunity earlier than is now the practice, e.g., the need of the extended training through a longer period of years so as to make it more nearly possible to become efficient in the language studied.

Through their adaptability to presentation by means

of the direct method and through the possibility of assembling for properly teaching them a large amount of easy and carefully graded materials for reading, the modern foreign languages lend themselves to instruction of pupils as young as those in the seventh grade.

Latin, on the other hand, lacks adaptability to the use of the direct method and is relatively wanting also in a wide range of easy reading materials. An examination of manuals in this language prepared for seventh and eighth grades shows them to conform rather closely to those we have long seen in use in ninth grades, i.e., to be organized for presentation by the grammar-translation method. These facts tend to incapacitate Latin as a subject for seventh and eighth grades. It may, however, be opened to election by eighth-grade pupils who are desirous of taking it and who are at the same time in the group of more capable pupils, but hardly by those of average ability or less.

Physical education.—The reader may recall that in the earlier portion of this chapter in which the plan of organization of the program of studies is set forth, provision was made for physical education in the constants for each year of the junior high school. This provision is intended to comprehend the "physical training" appropriate to these years of the child's life and such physiology and hygiene as should be introduced as an incidental, but withal, important part of the former. This field will be recognized as well in the work in general science, which, if it is to con-

cern itself with the explanation of those phenomena whose understanding and control are of the most vital significance to the individual and to society, must be constituted in no small part of problems of hygienic import. Vocational and community civics, the home and industrial arts, and other subjects in the program, both constant and variable, should also make valuable contributions to physical education.

It is now almost a commonplace to insist that the instruction in "physiology and hygiene" in these grades must come to stress the hygienic, rather than the physiological and the anatomical as we have done in the past and are still doing. In addition to providing the intellectual basis for the control of behavior in its hygienic aspects, we must proceed definitely to establish correct hygienic habits in personal, home, school, and community matters. To do this we shall need to seek for opportunities for application of the rationalizations in practical sanitary and hygienic activities. The junior high-school period being that in which sex maturity arrives for most children, one important item of concern for it must be education in matters of sex.

The trend of thought and practice in physical training in the school years associated with the junior high school has been away from formal gymnastics and toward games, athletics and folk dancing as the principal constituents. While it will be retained in some part for corrective advantages it may possess and for

other reasons more or less important, the use of the former as the chief or sole kind of activity develops a dislike for bodily exercise and thereby discourages rather than fosters the establishment of adult interests in physical recreation which will tend to offset the evils of our modern sedentary life. Properly administered, the latter type will realize in larger measure almost all the values of the former and in addition bring certain social benefits and these permanent interests in physical recreation. It will encourage a more general voluntary participation in athletic activities on the part of the student body.

This program of physical training must include an adaptation of activities to the needs of boys and girls, since they are at this time manifesting the fundamental differences in physical make-up characteristic of the two sexes in adulthood. Differences among members of the same sex must also be recognized.

The fine arts.—Music and the graphic and related arts are of sufficient importance to the training of youth to be made requirements in the junior high school. The program of studies suggested at an earlier point in the current chapter has made constants of both in the seventh grade, offers the alternative of either in the ninth grade, and presents both as additional variables in all three grades. There are also applications of the latter in the courses in the practical arts and in the assembly singing in which all pupils participate one or more days each week.

The functions of this work should be to raise the general level of aesthetic participation and appreciation to furnish opportunities for exploration in order to assist in planning more discerningly the subsequent activities of the individual pupil, and to give, as far as is practicable in these early years and within the restrictions of the school budget, the beginnings of vocational instruction for those who desire to specialize along these lines. The excellent socializing possibilities inherent in these subjects should not be left unmentioned.

Although music is listed as a constant in seventh grade and as an alternative in ninth, it is not to be contemplated that all will be required to take identical work in this subject. We are now aware that individual variation as to ability, capacity, and interest in music in any grade is so great as to mark such a proposal as highly impracticable.[1] In junior high schools large enough it will be advisable to make provision for two or more kinds of training that may be accepted as qualifying on this prescription. There are those who are relatively poorly equipped by nature and training for whom there should be courses subordinating technical music and participation to appreciation. In the courses for this group the player-piano, the victrola and other means for reproduction will be in frequent use. The outline of activity for

[1] Seashore, C. E.: "The Rôle of a Consulting Suprvisor in Music." *Eighteenth Yearbook of the National Society for the Study of Education* (1919), Part II, pp. 111-23.

the remainder, better equipped than the former, may be constituted in larger part of technical music and participation. Any one of the many sorts of musical activity should be accepted as satisfying the requirement for these pupils, among them the regular course in technical music offered in the school, active membership in choruses, glee clubs, orchestras, and bands when organized and trained at regular intervals under school auspices, and individual tuition in vocal and instrumental music either with members of the school staff or with approved extra-school instructors.

Elections may be made in the time allowed for variables from the offerings just described as satisfying the requirement. Partly on this account this offering should be as generous as possible. Courses in theory are best reserved for the senior high school.

The contacts in the courses in the arts other than music should include the graphic and related arts and, like those in music, should keep in mind the two levels of appreciation and participation. In the required work in the seventh grade and in the alternative courses in the ninth the former level will be stressed much more than has usually been the practice, although production will not be disregarded. The variables may justifiably emphasize production more than do the constant and alternative courses. Both constants and variables should be constituted of a wide variety of the arts, graphic as well as others. They should not

be restricted to mere "drawing" as ordinarily taught. As great values are to be derived from interrelation of the fine and the practical arts, opportunities for application of the former in the latter should be multiplied by close co-operation between the two departments. Advanced specializations in the field of the graphic and related arts must be left for the program of studies of the senior high school.

The practical arts.—There are few communities whose junior high schools should be regarded as commensurately performing their functions without making some offering, even though limited, in each of the four main fields of the practical arts which have come to find a place in secondary-school programs, viz., the industrial arts, the home arts, commercial work, and agriculture. The amount offered in each of these lines must reflect community needs, but at least enough should be offered in each to permit satisfactory exploration. In the fields requiring special recognition because of community needs there should be enough to allow also for the beginning of serious vocational education. For instance, there is hardly a community which could justify a failure to provide three years of work in the home arts, an amount which would constitute the beginning of specialization in that line; few rural communities could excuse a smaller offering than this in the two lines of home arts and agriculture; junior high schools in industrial and commercial centers should provide for the *beginnings* of specialization

in the home arts, in industrial arts, and in commercial work; there are communities in which such opportunities should be open in all four of the lines named.

The total numbers of periods of constants and variables in the suggested program have been so arranged that the latter may make up a sixth, a third, and a half of the work of the pupil in the seventh, eighth, and ninth grades, respectively. It may be seen that a pupil might fill the variable portion of his curriculum exclusively with work in the practical arts and thus do much in exploration, or, if the need arose, even go appreciably in the direction of vocational education. This privilege would be enlarged in some instances by the constants in seventh grade of industrial arts, for boys and home arts for girls.

In order to perform satisfactorily the function of exploration in the special field of industrial arts opportunity should be given the pupil to make a rather wide variety of occupational contacts. To restrict him to the single field of benchwork in wood—what is usually taught as "manual training"—, concerned as it is with the making of formal projects, and to supplement this sometimes by bits of desultory "mechanical drawing," may not be looked upon as more than a feeble beginning. Many of those who have thought carefully about the means of exploration are insisting that the first courses in industrial arts in the junior high school give the pupil an acquaintance with the

activities of a number of fundamental industries. The report of the survey of vocational education for Denver, for example, recommends that the shop work of the seventh and eighth grades include activities from wood working, metal working, sheet-metal construction, printing and bookbinding, electrical construction, simple construction in concrete, building materials, and drawing.[1] Just what industries are to be illustrated in these earlier courses, and in what proportion, might well be made to depend somewhat upon their representation in the community, especially if the population was stable rather than shifting. Perhaps also the more common of these industries should be illustrated in the seventh-grade constant in industrial arts, the less common to be recognized in subsequent variables. The "units" of work of which a course is composed should be short, but not too brief to make real exploration possible and to provide enough serious typical activities to tax the perseverance of the boy, offer him the opportunity of surmounting the difficulties which confront him, and provide genuine training in the field represented. These "type" experiences should take place under conditions as nearly like those to be found in the industry itself as may be arranged. Such participation should be supplemented by excursions to places where the work in the industry is going forward, by discussions by the instructor or

[1] *Report of the School Survey of School District Number One in the City and County of Denver,* Part III, Vocational Education, pp. 32-33.

other informed person, and by readings bearing on the industry. Through all these avenues the pupil should gain as large a knowledge of each occupation touching its materials, tools, and operations, as well as its value in social service, personal qualities required for participation, full preparation necessary, remuneration, working season, and status of the workers, as may be given in the short time available.

Courses organized after the manner just delineated will have in addition to their exploratory and vocational values rich social values emanating from the knowledge they give of the world's work and the world's workers, a knowledge much needed for the civic and social co-operation and sympathy essential in a democracy. They will be seen in many respects to be designed to perform functions similar to those performed by the course in vocational civics already described and with which they should be carefully co-ordinated.

Besides the courses in industrial arts requisite for exploration there should be, in line with a recommendation previously made, such half-year or full-year courses, more in the nature of specializations, as are justified by the needs of the pupils and of the community. These should usually follow the courses already described and be taken in the ninth grade, but should be open to over-age pupils of the seventh and eighth grades who are certain to leave school early and whose occupational destination seems to be fixed.

The first course in the home arts, the constant for seventh-grade girls, should be a general course introducing materials from a wide range of activities in this field. If work in these arts has already found place in the preceding grades it will need to be organized in the light of what is presented there. This and subsequent courses, the latter being concerned with kinds of activities not explored in the former and with some beginnings of specializations, will provide much participation both in school and out in practical household activities. Also, while this work is proceeding, as in the courses in industrial arts, experience will be added through excursions, discussions, and reading.

The administration of the work in agriculture should differ from that of the two preceding arts. The course in general agriculture, including some study of farm crops, animal husbandry, soils, horticulture, farm mechanics and farm management, may be postponed to the eighth grade. It may be preceded in the seventh grade, accompanied in the eighth, or followed in the ninth by gardening or home projects along many lines, a few of which have been suggested in the list of variables above. In agricultural communities it should be followed in ninth grade by some specialization reflecting the needs of the community.

It may not be practicable, because of the more extended training required for admission to all but the humblest of business occupations, to offer opportunity

in the junior high school for specialization in commercial work. Nevertheless, it has been demonstrated to be feasible to offer some work in a number of subjects for purposes of exploration and for preliminary vocation training, among them penmanship,[1] commercial arithmetic, spelling, bookkeeping, typewriting, and shorthand. These materials should all be presented with as intimate contact with actual conditions of business as may be and accompanied by information concerning the occupations which they are planned to explore. Serious and extended specialization in commercial work must be deferred to the grades of the senior high school.

Throughout the work in the courses in which the practical arts are being taught the pupil should be made aware of the adult standards of efficiency in the occupation which he is exploring or in which he is receiving preliminary vocational training. He may thus measure his own effectiveness and thereby estimate his possibilities of success in the field under consideration.

[1] Separate instruction in handwriting has been mentioned at no other point in the discussion of the subjects of study in the junior high school. This is because we seem warranted in believing that through effective special instruction in the six preceding grades, supplemented by incidental instruction in the junior high-school grades, very few children will fall short of the standards in quality and speed which those not going into commercial pursuits will need to meet in vocational and non-vocational activities. For those considering entrance upon commercial occupations, the special instruction in penmanship here suggested will be necessary. For the standards in quality see an article by the author in the *Elementary School Journal*, XVIII, 423-46, February, 1918.

RELATION TO OTHER FEATURES

In a preceding chapter it was pointed out that the peculiar functions of the junior high school are not completely separate and distinct from each other, but are, instead, much interinvolved. The features, also, have intimate relationships with each other. Thus, the feature whose discussion is just being concluded may be seen to be dependent upon the provision of other features to be discussed in the succeeding chapter. The hope of provision of such a program of studies as has been outlined must wait upon the possibilities of specialization of teaching work that accompanies departmentalization or semi-departmentalization; a program partially variable requires promotion by subject; it may not be presented satisfactorily by traditional methods only nor by teachers with traditional attitudes and inadequate training who are in turn supervised by principals without a conception of the possibilities of this new institution; to administer the variables so that each child will have included in his curriculum those subjects which will be of greatest service to him will require the establishment of the machinery of an effective advisory system; many of the extra-curricular activities listed among the variables will be out of question without the social organization of the students; while many among both constants and variables may not be presented without improved housing and enlarged equipment. This dependence of the provision

of a satisfactory program of studies upon many other features is evidence that a functioning reorganization may not be effected without the introduction of not one, nor a few, but of many features.

V

OTHER FEATURES OF REORGANIZATION

THE limits of the present volume permit no extended treatment of any single feature of the junior high school. It attempts, however, to give brief attention, macroscopic rather than microscopic, to each feature occurring with considerable frequency. In this chapter are discussed briefly all features listed in Figure 7 still left untouched, except for incidental reference, in the foregoing pages. The reader should find the device in the figure referred to facilitating consideration of the importance of the features, or of variations of them, to effective reorganization.

DEPARTMENTALIZATION

Judging from the universality of its provision departmentalization of the teaching work seems to be regarded as a fundamental feature of the junior high school. In fact, this feature is often the only change that is made from the traditional organization which may be offered in defense of assigning the name junior high school to the reorganization effected. Moreover, what is ordinarily provided is not departmentalization

as much as it is semi-departmentalization in which a teacher gives instruction in two or three or even four subjects, rather than in one only.

The trend of thought in some quarters is to approve this hesitancy to institute complete departmentalization, especially in the work of the seventh, but sometimes in the work of the eighth and ninth grades. Where the work of the grades below the seventh is in no part departmentalized, as is usually the case, the sudden change for the pupil to full departmentalization in the seventh grade would turn out to be even more disconcerting for him than it is when it comes, as occurs under the 8-4 plan, two years later. It appears the better wisdom to move gradually toward full departmentalization from the one-teacher regimen of the preceding grades, inuring the pupil by degrees to the responsibilities and exigencies of the former.

Specialization of the teacher's work—synonymous with departmentalization—is essential to the performance of a number of peculiar functions of the junior high school. Its vital relationship to providing the conditions for better teaching is one very frequently referred to in literature dealing with reorganization. The necessity for it in these grades as contrasted with grades below the seventh emanates from the teacher's need of an increasing knowledge of subject-matter with the increasing mental grasp of the pupil. Without such specialization we may not hope for the extent of vocational education we should expect, nor may we

demand that the teacher be capable of offering to pupils anything like adequate opportunities for exploration. As a consequence, recognition of individual differences will be somewhat restricted. This specialization should also bring with it more often than does the poorer preparation in subject-matter of the teacher in the conventional organization the inspiration of the pupil to better effort and a higher grade of scholarship. It should result in an enrichment of content and effectiveness of method that will enlarge the socializing opportunities. These results will in turn be accompanied by an improvement of the disciplinary situation. The achievement of this disciplinary phase of the function last named in Figure 7 should be markedly accelerated by the relief to the pupils through the changes of teachers and rooms that come with departmentalization. The socializing phase will be better performed by the larger number of teacher-personalities with which the child will make contact. Economy of time will in some measure be effected, because, through departmentalization, one teacher will present the work in the same subject in successive grades and will be in a position to know what is covered in each grade, thereby being enabled to avoid unnecessary duplication. Finally, by assisting in achieving a number of the functions as indicated, departmentalization will encourage the pupils' retention.

PROMOTION BY SUBJECT

Subject-promotion is almost as common a feature of reorganization as is departmentalization. By some it is regarded as a part of the latter. Childs[1] found it to be "a well-nigh universal practice with junior high schools" in Indiana. The writer, in an investigation made for a committee of the North Central Association, found that, in a group of 46 reorganized schools distributed in twelve states of the middle west, 34 were promoting by subject.[2] The frequency of promotion is largely dependent upon the size of city. In small communities it is yearly and in the larger communities, usually semi-annual.

The justification of including this feature may be sought in the widely recognized fact of the differing degrees of success, as measured by school marks, of the same pupils in different subjects. The situation may be illustrated by the measures of correlation found by Parker between the marks of 245 ninth-grade students.[3] The coefficients found may be illustrated by the following:

English and History	.62
English and Science	.58
English and Algebra	.55

[1] *Op. cit.*, p. 47.
[2] Proceedings of the Twenty-first Annual Meeting of the North Central Association of Colleges and Secondary Schools (1916), p. 186.
[3] Cited by Thorndike, E. L.: *Educational Psychology*, 1903, p. 36.

English and Drawing	.15
Science and History	.56
Science and Algebra	.40
Science and Drawing	.20

A. G. Smith[1] found the coefficients of correlation for the marks of over 1500 children in the grammar grades of the New York City schools to be as follows:

English and Mathematics	.395
English and Geography	.435
English and Drawing	.155
Mathematics and Geography	.36
Mathematics and Drawing	.14
Geography and Drawing	.125

These coefficients give some support to the statement often made that, if a pupil succeeds in one subject there is considerable likelihood that he will succeed in others and that, if he does poorly in one that he will do poorly in others. At the same time the measures are small enough to urge the inclusion of promotion by subject as a feature of reorganization.

Such inclusion would clearly be a recognition of individual differences, because it would not force upon the pupil failing one or more "important" subjects the waste of time of repeating the work in which he has not failed. This he is often called upon to do. Permitting him to advance at least in the part in which he has been given passing grades and requiring him to repeat only those constants in which he has

[1] *Ibid., p.* 37.

failed will often keep him in school past the period of compulsory education. The pupil affected by the traditional plan in the manner described, through the expression of the resentment he harbors is often a disturbing factor in the disciplinary situation, subtracts from the possibility of securing conditions for effective teaching, and has a detrimental effect on scholarship. Promotion by subject should reduce the frequency of these obstructions. It is necessary also in administering a program which is to allow for exploration and offer the beginnings of vocational education.

METHODS

Material and method in the educative process are so inextricably involved that we may effect only measurable improvement in the former without efforts at progress in the latter. Method is also important on its own account.

The two innovations of classroom procedure which have made their appearance in the grades of the junior high school more than others are (a) supervised study, and (b) methods of teaching through the project and problem. Both are used and usable in grades above and below those upon which we are here focussing attention.

Supervised study seems to have more commonly found a place than have the project and problem, but it is introduced with extremely wide variation of

detail. This is especially true in the matter of the amount of time given to it. The most common single practice found in a recent examination of the daily programs of a number of unselected junior high schools is the provision of a fifty- to sixty-minute period about equally divided in the academic subjects between recitation and directed study.

Although the tendency to question the value of this mode of classroom procedure is on the decline, there is debate on the total amount of time and the proportion of the class period which should be devoted to it. Final answers to the questions involved must wait upon the findings of experience and experimentation. One of the chief aims of such directed study is training the pupil in the technique of study peculiar to each subject, which has been almost ignored in our schools to date. Another is recognizing individual differences, which current methods of group instruction seem almost to have left out of account.

In casting about for relief from exclusive use of drill and what Judd terms the "examination" method of teaching, "the familiar one of calling a pupil to his feet and then asking him one question after another to find out whether he has learned his lesson," [1] educators also hit upon the project and the problem [2] as the unit of instruction. While both have been

[1] Judd, Chas. H.: *Introduction to the Scientific Study of Education*, p. 234.

[2] The project and problem methods are not defined here. The reader will find an excellent description in Freeland, G. E.: *Op. cit.*, Chaps. II-III.

used successfully throughout the school system and as far down as the earliest grades of the elementary school, their suitability for the grades of the junior high school, which enroll children of the ages when socialization of motive and method peculiarly appeal, must be evident. These methods are appropriate in the classroom, laboratory, shop, excursion, and home and extra-curricular activities. They are suitable in a wide array of subjects.

When we direct attention to the bearing of these types of method, supervised study and the project and problem, upon the performance of the peculiar functions, we see that the advocates of the former are justified in their expectation that it will help in recognizing individual differences. It gives the teacher the time to devote special attention to individual pupils. Since it aims to teach the pupil to study effectively, thus reducing the total of wasted efforts, it should work in the interests of economizing time. Through the fuller knowledge it gives teachers of weaknesses and strengths of pupils, it should assist materially in guiding the latter educationally, vocationally, and otherwise. It is itself better teaching and results in superior scholarship shown in a reduction of the proportion of failures and withdrawals and a somewhat superior distribution of marks. The closer contacts of teacher with pupil bring an improved disciplinary situation and better socializing opportunities.

The methods of teaching through project and prob-

lem may be administered through their assignment in the light of capacities and interests of pupils, so as to adapt instruction to individual needs. As contrasted with the "examination" method, they are better adapted to recognizing the child's nature at adolescence. Their use should constitute a reform in instruction and motivate the pupils to a larger measure of self-education, thereby encouraging a better use of time. The improved attitudes will be accompanied by relief of the disciplinary situation. The types of projects and problems selected and the manner in which they are worked out will enrich the socializing opportunities of the school. They will enhance the school's adaptability as an agency of exploration and of preliminary vocational education.

Both types of method, supervised study and the project and problem, in performing the functions in the manner described will assist in holding pupils in school beyond the upper limit of the period of compulsory education.

THE ADVISORY SYSTEM

Several important considerations urge providing in the reorganized school some sort of advisory system. Experience has demonstrated that instituting departmental instruction without simultaneously including some feature which makes the pupil answerable to a member of the staff and the latter in a sense respon-

sible for the pupil results often in disciplinary and social disorganization of the student body. Attention has already been directed to the need of guiding the pupils in selecting from the variable portions of the program of studies. As this is a time during which the bulk of elimination takes place from the school and when the children's interests are tending rapidly to comprehend adult concerns—vocational, avocational, and social—, the advisory obligation may not safely be avoided.

Many junior high schools have made a start in providing the advisory machinery by instituting plans which are designated as "sponsor-teacher," "teacher-adviser," "room-teacher," "home-room-teacher," "roll-room-teacher," or "class-adviser" systems. In these systems, the responsibility of the adviser ranges from mere disciplinary control to rather full functioning in a wide range of disciplinary, social, curricular, vocational and avocational counsel. The former is by far the more common practice. There should be vigorous and persistent effort to advance toward the latter. There should be progress as well, more nearly gradual than saltatory, from the rather complete control from without usual in the grades of the elementary school to an administration of discipline which places responsibility with the student.

Two types of assignment of pupils to sponsor teachers may be described. The more usual one is that in which a teacher has charge of a recitation section to

which he gives instruction in one or more lines of work. The pupils of this section are in his room, their "home-room," at the beginning and close of each session and during the periods in which he is giving them instruction in his subjects. The other type is that which "assigns pupils from all grades to each group," allowing the group to "remain constant except for promotions to and from school."

Two of the advantages which Hieronimus,[1] who has used the latter plan in the Garfield Junior High School of Richmond, Indiana, believes it has over the former, are that it "makes for continuity and permanency" and "enables each adviser to get in touch with his pupils more quickly," since only a few new ones are received into each group each term. The objection to the former plan here implicit may be partly offset by avoiding as far as possible complete reorganization of the recitation groups at the opening of each term or each year, thereby making for better continuity of the groups. This may not be accomplished, however, for all during a three-year period because of the gradually increasing proportion of variables in the program suggested and because of promotion by subject.

In addition to performing this function of being teacher-adviser for a special group each member of the teaching staff must be an avenue of guidance through the instruction given in his subjects. This is neces-

[1] Hieronimus, N. C.: "The Teacher-Adviser in the Junior High School," *Educational Administration and Supervision*, III, 91-94, Feb., 1917.

sary for making the program of studies the agency of exploration, education and vocational, which we are becoming convinced it should be.

Curricular exploration may be said to have two main aspects, that in which the pupil is allowed to come in contact directly and vicariously with a wide variety of activities and that in which those who are directing the exploration are testing out his interests and capacities as he proceeds. Both are going forward at the same time and may be accomplished not only in such subjects as vocational civics and the practical and fine arts, but in the academic subjects as well.

It is obvious that the selection of one's adult occupation, for example, on the basis supplied by a knowledge of the opportunities in and the requirements and kinds of activities of a large number of vocations, that may be given in a life-career course and in courses in the practical arts would be more discerningly made than has been the too frequent practice. This would be especially true if the conditions of work in the courses in the practical arts resemble those of industry with respect to materials, methods, and speed. Participation in the actual industrial processes would also constitute the crucible test of interest in a vocation, as interest often melts away in actual contact.

It is possible, on the other hand, during these curricular contacts to obtain measures of the pupil's success and to use these measures in advising him as to suitable lines of vocational or other specialization. This

may be accomplished not only in the practical and fine arts, but in the academic subjects as well. In fact, the measure of success in the academic subjects has been found to supply a tolerably, even if not completely, dependable index to success in subsequent academic work and in occupational life of adulthood. As the best prophecy of success in an occupation is to be found in successful participation in it, the provision of conditions of work in the courses in practical and allied arts resembling those of industry is here again recommended. The instructors in these subjects are also under obligation to develop and apply objective tests of success in such participations as are provided, tests that will indicate both to the teacher and to the pupil the progress the latter is making toward adult standards.[1] It may be remarked in passing that such tests, since they would measure improvement during a period of training and not initial ability only as do many of our tests, would afford a comparatively reliable basis for advice in guidance.

The tests by teachers of the abilities of the pupils should be supplemented by tests of physique, estimates of personal make-up as shown in contacts with other pupils and with teachers, tests of intelligence such as the Stanford Revision of the Binet Tests or the Otis Group Intelligence Tests and information as to home and other environmental conditions. All such data

[1] Examples of tests that might be adapted to such a use are the National Business Ability Tests described in Cody, Sherwin: *Commercial Tests and How to Use Them*, 1919.

should be assembled in some form and place convenient for use in the work of guidance.

The foregoing description makes the rôle of the teacher in an advisory system an important one. This must be true for any satisfactory plan, since the teachers' knowledge of the pupil should be the most informative we have. At the same time, it is not to be expected that an effective system of guidance may be solely a teacher plan. There must also be a coordination and direction of activity along these lines. Besides, there will be some kinds of information concerning pupils, instanced by the tests of general intelligence, which should be gathered by the coordinating authority. In small high schools enrolling up to two or three hundred pupils, the principal may be expected to serve as leader and coordinator and his office should be the place of assembly of the materials. In larger high schools it will be necessary to secure the services for part or full time of some person especially equipped for directing the work.

It is not to be inferred from what has been said that there may be anything like compulsion in a plan of educational and vocational guidance. Democracy in education insists upon monition as against constraint in these important matters. It is incumbent upon the school, however, to supply all needed information to the pupil and to his parents, both concerning himself and the occupations, so that he and they may have a basis for intelligent choice.

The relation of providing an adequate system of pupil control and advice more or less of the sort just described to achieving the distinctive functions of the junior high school is so evident as scarcely to require exposition. The pupil's retention will be encouraged by the closer contact and interest of the teacher, as well as by the better performance for him of the other functions. His time will be economized by selecting work suited to his needs. Through the exploration which this feature implies his individual differences may be better recognized and his education, vocational, avocational, or other, more wisely planned. The counsel to be given him will be along lines in which his interests at this stage of life are running. His conviction of the value of the variables he selects in the light of the advice he receives will tend to motivate his work in those subjects, securing more earnest efforts on his part and providing in some measure at least the conditions of better teaching. The disciplinary situation and socializing opportunities will also be improved for him.

Attention needs hardly to be directed to the insufficiency of the usual advisory system—if it may be dignified by that name—which provides a home-room teacher who is merely in disciplinary control of the group, and in which the principal gives hasty and unsystematic advice, if any. The reasons for this condition are to be sought perhaps both in the lack of appreciation of the need for the wider functioning and

in the present inadaptability of the staff to the task. Large strides must be made in preparation of teacher and principal before adequate advisory systems may be generally provided.

THE STAFF

In spite of all the importance that may be ascribed to other features of the junior high school, the supreme place of properly qualified teachers and principals in effecting thoroughgoing reorganization cannot be gainsaid. It is perhaps generally conceded that if a staff meeting all desirable requirements may be secured, the remaining features necessary for reorganization will almost automatically follow.

The properly qualified teacher for the junior high school may be briefly described in terms of his relation to the features and functions of this new institution. The features with which the teacher may be expected to have most intimate relationship are the program of studies (with departmentalization), methods, the advisory system, and the social organization. Since it is the teacher who presents the materials of the program, he should have sufficient ability in the fields he is teaching to assemble and organize them. This is the more imperative with the present dearth of textbooks suitable for use in classes in the junior high school; in far from all lines have texts appeared and many of those offered are ill-adapted to its needs. The knowledge necessary is also often not of the sort that

has been traditionally presented to those preparing for teaching positions. Such a teacher must know and appreciate the values of subjects of study other than his own. He must be equipped with a new type of method, which, instead of being limited to hearing pupils recite the lessons they have studied in textbooks, will stress the teaching of how to study effectively in the subjects for which the teacher is responsible and which will resort to the project and problem as means of making the child more of an agent in his own education. He should be able to detect important individual differences and adapt instruction to them. In discussing the advisory system much was made of the teacher's rôle in guidance, both as a sponsor teacher and as a teacher of subjects to be used in testing out the pupil's capacities and interests, a rôle for which few teachers are at present equipped. The teacher, too, must be an important factor in the development and direction of extra-curricular social activities. He should be socially and pedagogically so constituted as to appreciate them as an agency of education rather than to look upon them as an annoyance to be tolerated or an intrusion upon the purely academic interests. For adequate functioning in all the features named he should measure up to what Gosling refers to as the " moral requirements " of the junior high-school teacher, viz., understanding of, and sympathy with adolescent boys and girls; a clean, generous, and inspiring personality; qualities of real leadership; a

broad social vision and a keen sense of social obigations." [1]

For the purposes of normalization of the social situation in the junior high school it is desirable more nearly to equalize the number of men and women teachers in these grades.

The possibility of achieving all peculiar functions of the junior high school with teachers of the sort here briefly characterized is apparent. The disturbing element in the situation is their rarity and the difficulties in the way of rapidly producing them. Years must pass before normal schools and universities will turn out teachers who will understand the functions of the junior high school and be able to mold the means for their achievement. The training of present graduates of neither of these types of institution has been such as will fit them for this important work. Pedagogy with meager scholarship in subjects and extended training in subjects with meager training in pedagogy are both incommensurate to the task, especially when neither pedagogy nor scholarship have been planned with preparation for teaching in this institution in mind. Moreover, because it seems probable that for many years the salaries offered for teaching in junior high schools will lie somewhere between those for teaching in the elementary school and the high school, the more capable graduates of colleges

[1] Gosling, T. W.: "The Selection and Training of Teachers for Junior High Schools." *Eighteenth Yearbook of the National Society for the Study of Education*, 1919, Part I, p. 173.

and universities will be reluctant to accept positions in the intermediate institution. We are thus led to anticipate that in the immediate future teachers for junior high schools, whether experienced or inexperienced, will be drawn largely from those who have been prepared for elementary-school teaching in our normal schools.[1] This urges upon those responsible for appointments the selection of normal-school graduates who, approximating as nearly as may be the standards set down above, are ambitious and possessed of ability to grow. Even more necessary is their training during service in an understanding of the purposes of this new institution and the means through which those purposes are to be accomplished.

In the absence of teachers qualified to do their full share in the performance of the functions of the junior high school, much depends upon the selection of a principal who is alert to all that is to be demanded of this new institution, who is equipped in all the respects in which the teachers appointed are lacking, and who is capable of leading and directing their training during service. A principal of these parts working with a compromise staff of teachers will be able to bring a junior high school to an estimable level of functioning.

[1] Small committees with six-year secondary schools will tend to be excepted from this limitation, because in them college-trained teachers will give instruction in their subjects from the seventh grade through the twelfth.

THE SOCIAL ORGANIZATION

The necessity of breaking with the traditions that make the school an institution with purely intellectual purposes through extension and organization of its social activities has often been stressed in recent educational literature. It is implicit in much that has been said in foregoing pages and will hardly require vindication at this point. These activities already loom large in the four-year high school and in a number of junior high schools. They run through a wide variety of interests and forms, among them athletic teams and associations; debating, oratorical, declamatory, literary and dramatic clubs and societies; department clubs in science, art, languages, and history; musical organizations such as glee clubs, choral clubs, bands, and orchestras; religious and social-service clubs; staff of the school journal. Mention should also be made of the importance of developing the school's informal social life.

But evils appear in these extra-curricular activities, if they are not properly organized and controlled. There is danger that some students will over-indulge in them while others will neglect them too much or entirely. They will sometimes be carried to such an extreme that they will interfere with the legitimate demands of the academic interests. Not infrequently they will take such directions as to be socially detrimental, as when they are accompanied by excessive ex-

penditures of money or tend to develop cliques. A satisfactory plan of control will include systematization to avoid conflicting interests and direction by the staff sufficient to insure the realization of the educational values inherent. It should aim also at more nearly general participation, as has recently become the ideal in athletics.

Attention has already been directed to the prominent place of the teacher in any satisfactory plan and to the kind of teacher requisite to the task. The teachers should act more as leaders than as censors. For many lines of extra-curricular activity, as may be seen by examination of any fairly complete list, direction or leadership of a more or less expert character is imperative. When teachers are assigned to such work, if it is to exact any extended amount of time and effort, concessions should be made on the teaching schedule, so that it will be recognized as a part of the regular work and will not suffer neglect because it is regarded as a burden in excess of a full teaching load. In large junior high schools it will be found necessary to relieve the principal of direction of the system and to engage the services of some suitable person for part or full time to foster the work.

The appropriateness of the social activities to the interests of children of the ages under consideration can not be doubted. Effectively administered they will enrich the socializing opportunities of the school and encourage a self-direction of pupils that will con-

stitute progress in the disciplinary situation. The variety of activities will permit the child to explore for his special propensities or, having found them, to gratify them. We may anticipate that participation will often turn out to be in the nature of vocational preparation. The presence of the social motive will frequently bring a more intense application resulting in a higher quality of performance. The enhanced interest in school life brought by these activities will encourage many to make a longer stay in school.

HOUSING AND EQUIPMENT

Experience seems to prescribe that, wherever possible, the junior high school be housed in buildings of its own and not be co-occupant with a senior high school or an elementary school, more especially the latter. This is not always feasible, particularly in the smaller communities. Separation assists in freeing the new institution from the restricting traditions of these other schools and thus gives latitude for a better recognition of the child's nature during the years of oncoming and early adolescence. It permits a shift to a disciplinary regime more suitable for children of these years and, through the greater approach to homogeneity of the group included, better opportunity for other efforts at socialization.

It seems advisable to warn against a questionable practice that has arisen in connection with establishing junior high schools as co-occupants of buildings with

elementary schools—that of providing them in too large a proportion of schools. Any such tendency must keep the number of pupils in any one organization so small as to militate against providing for the recognition of individual differences through grouping according to ability, for exploration for guidance, and for vocational education. Performing these functions is facilitated by concentrating rather large numbers of children. On the other hand, the territory drawn upon should not be so large and the building used so unfortunately located as concerns remoteness from many of the homes from which pupils are to come that distances will encourage early elimination at the termination of the period of compulsory education.

The kind of plant, i.e., grounds, buildings, and equipment, adapted to the needs of genuine reorganization is not often found in use. There must, of course, be classrooms, but they should be fitted with seats, desks and other equipment suitable for use in directed study. There must be laboratories equipped for instruction in courses in general science. There should be shop facilities sufficient to provide the contacts in the industrial arts which a survey of the needs of the pupils and of the community will recommend. Their extent will depend also upon the enrollment of the school. Owing to the varying influence of these factors, no general rule may be laid down as to what separate or combined shops are to be included in the plans.

However, provisions should touch as wide a range of the industrial activities listed in the materials dealing with the program of studies in a preceding chapter as is feasible. In no case should the facilities limit the industrial contacts to benchwork in wood only, as seems to be the usual practice.

The facilities to be provided for commercial work, agriculture, music and the graphic and related arts must be determined by analogous principles. In junior high schools in commercial centers special rooms and equipment will be required for bookkeeping and typewriting. All junior high schools should make some space-provision for instruction in agriculture. In larger communities this may sometimes be limited to school and home gardens and facilities for a course in general agriculture. In farming communities it may be extended to special laboratories and a school plot or farm adapted to the presentation of a more extended offering. The facilities for instruction in the home arts, because of the universality of the need for the work, should be as extensive as practicable and may well always include some space and equipment for sewing, fitting, millinery, design, cooking, and laundering. If at all possible, opportunities for observation and practice in a model cottage or apartment should be provided. The equipment in all shops and laboratories should be so chosen as to reflect the needs of the world outside the school. Ample facilities should be provided for physical education and recrea-

tion, including playgrounds, gymnasia, shower rooms, and swimming pools. No junior high-school plant should be regarded as complete without provision of space, books, periodicals, and other equipment for a library commensurate to the needs of children of the ages to be included, or without an auditorium or assembly room equipped with stage and dressing rooms. In the larger junior high schools the development of social activities gives rise to a demand for one or more smaller additional assembly rooms. These may also be used for some types of instruction in which large groups may be advantageously managed. Among other necessities will be lunch rooms, rest rooms, offices, corridors, locker-rooms, toilets, bicycle courts, not to mention the space and equipment for heating, ventilation, etc.

Even this superficial catalogue of the large items in the junior high-school plans shows that without them the provision of some of the features of reorganization discussed in this and the preceding chapters is under serious handicap. Among these features are the program of studies, improved methods, the advisory system, and the social organization. There is no peculiar function the achievement of which would not be accelerated directly or indirectly by a plant conforming to that just described, although some would be aided more than others. The strictures placed upon such achievement by the type of plant not uncommonly provided may without difficulty be imagined when it is

recalled that junior high schools are often housed in unremodeled buildings formerly accomodating high or elementary schools, buildings whose erection antedates modern conceptions of secondary education.

VI

THE STANDARD JUNIOR HIGH SCHOOL

THERE has been some tendency in the educational world in recent years to accept the *typical* as the "*standard.*" Although such a practice will sometimes have much to commend it, there are occasions on which it would be indefensible. A notable instance of its ineptitude would be the acceptance of the typical junior high school as the standard of reorganization.

Described in terms of the features of reorganization, this typical junior high school distributes work to teachers departmentally or semi-departmentally and promotes by subject. As to these two features it conforms fairly well to desirable practices. On the other hand, the typical junior high school wavers between the two-year and the three-year organization; it still adheres to the requirement for admission to the seventh grade of "satisfactory completion of all the sixth-grade work"; its program of studies deviates but slightly from the better offering in the same grades of the conventional organization: it has given no important place to directed study and restricts itself almost exclusively to the "examination" method of recitation; its advisory system is confined to the dis-

charge of the disciplinary responsibilities of the home-room teacher; its staff is made up in very large part of upper-grade teachers not especially selected for their promise in a new field of work requiring adaptability and an active capacity for growth; its social organization is restricted to a few unsystematically administered and educationally ineffective extra-curricular activities; and, when it is not housed with the senior high school, it is co-occupant with an elementary school of an unremodeled and poorly equipped building. This typical organization may perform functions in few significant respects differing from those which are being performed by the conventional organization. We should, therefore, be regarding standardization lightly indeed were we to designate such an institution as this—hardly more than a departmental organization of upper-grade work—as the standard junior high school.

From one point of view we are not yet in a position to define the standard junior high school: we are still too remote from finalities in conceptions of both functions and features to speak with much assurance of what should be. Before we may attain these conceptions there must be a vast deal of investigation. This investigation should not be restricted to a discovery of current practices or of opinions as to what these practices should be. This is the type of investigation concerning this institution to which we have been too much confining ourselves. We must have painstaking ex-

perimentation and careful statistical evaluation. For genuine guidance in standardization we must now settle down to the laborious task of working out, detail by detail, the special purposes of the junior high school and the means by which these purposes are to be accomplished. For instance, our knowledge of the nature of the child during his years of attendance in these grades is still meager and must be much extended before we may, with any degree of ultimateness, define what is meant by recognizing it in the school regime. Likewise, we have much to learn concerning individual differences and what is involved in their recognition. We are relatively uninformed on the remaining functions to which we have given attention in preceding chapters, and on the need of their performance. It is conceivable that there are valid functions of which we are as yet unaware. The same may be said of the dearth of exact information on each feature of reorganization, e.g., the appropriate grades to be included, the curricular materials and their mode of administration, the methods, the advisory system, the staff, etc. As is the case with all our educational institutions, most of what we need to know still remains undisclosed and it is the responsibility of all who are in any way connected with the junior high school to assist experientially and experimentally in extending our information concerning its distinctive aims and the special agencies for their attainment.

But the lack of full knowledge to be gained by the methods of science has not prevented standardization of the older educational institutions. In the light of such information as has been available, standardization has proceeded and no small portion of our educational progress is to be ascribed to it. Similarly, it is necessary to utilize such knowledge as we have in attempting to formulate a tentative conception of the standard junior high school, this conception to be modified as exact information is added for our guidance. In the present state of information this conception far transcends the typical junior high school just characterized. Such a tentative standard is suggested by a cursory examination of Figure 7, to which reference has been made at earlier points in this volume. The functions in this figure are those which may be accepted, in the present state of our knowledge of the junior high school, as a working list of its distinctive purposes. Our tentative standard will also require that the features of reorganization and their mode of administration be such as to achieve these peculiar functions. Although there may be disagreement as to the degree of importance assigned to some of the features listed in Figure 7 in assisting in performing the peculiar functions, the great importance of most of them or of some variation of them is apparent and is suggested by the extremely large proportion of shaded area in the diagram.

As has been seen in a foregoing section of this

volume, the functioning of the junior high school seems to be best facilitated by the inclusion of the three grades beginning with the seventh and by a plan of admission somewhat at variance with insistence upon satisfactory completion of all the work of the preceding grade. The program of studies should be of the constants-with-variables and not of the single-curriculum or the multiple-curriculum type. It should in its constants provide the training necessary for all in achieving the physical, social-civic, and avocational aims, and in its variables give latitude for the individual choice which is possible and advisable in achieving the vocational and, in some part, the avocational aims. Both constants and variables should be administered as far as possible to recognize individual differences in ability. Some measure of departmentalization is desirable, although complete departmentalization, if provided at any point, should perhaps be deferred to the ninth grade or later. Promotion should be by subject. The work of the classroom should not be restricted to the "examination" method, but should give large recognition to study under supervision and to the project and problem. There should be an advisory system which will, of course, be concerned with the school behavior of the child. It must in addition comprehend his other interests, educational, vocational, social, and recreational. The staff in this standard junior high school should have been selected in the light of their vital relationship to other features

of reorganization and with a view to securing those who are capable and desirous of growth and who may be trained to an appreciation of the purposes of this institution. It is too much to expect many of them, when first appointed, to apprehend those purposes. Finally, the housing and its equipment should be such as to facilitate rather than obstruct the performance of the peculiar functions, allowing for a wide range of educational activity. The relationship of each of these features to the possibility of full accomplishment of the working list of distinctive purposes is so direct and intimate that if any one be ignored, the realization of the purposes is endangered to such an extent that it may be doubted whether this tentatively standard junior high school may be attained.

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